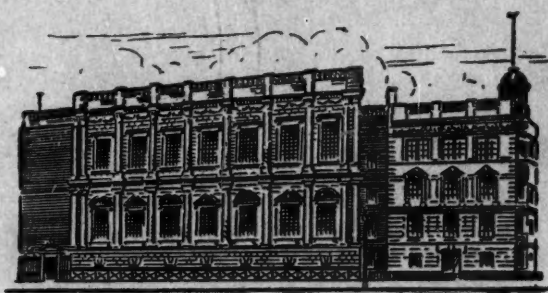


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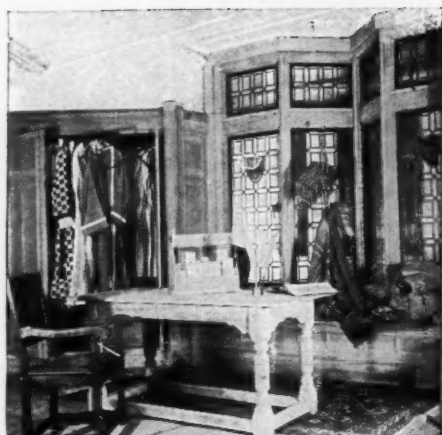
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Commissioned Officers of *all* H.M. fighting Services, including those of the Dominions, Colonies and India, and Midshipmen of the Royal Navy, Royal Naval Reserve and Royal Naval Volunteer Reserve, are eligible for membership without proposal or ballot.

Naval, Military and Air Force Cadets are eligible on the recommendation of their Commanding Officers.

An Officers' Mess may subscribe to the JOURNAL, but is *not* eligible for membership.

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THE INSTITUTION.

The Royal United Service Institution is situated just below the War Office in Whitehall. It has the best professional Library in the United Kingdom; a Lecture Theatre where an autumn and winter session of lectures is devoted to subjects of current or historical Service interest. The Reading and Smoking Rooms are provided with the leading papers, periodicals and writing materials.

The Institution is open daily from 10 a.m. to 7 p.m., except Sunday, Christmas Day and Good Friday.

THE JOURNAL.

The R.U.S.I. JOURNAL is published quarterly and sent post free to Members in any part of the world.

THE MUSEUM.

Situated in the Banqueting Hall of the old Palace of Whitehall (1622), with its magnificent Rubens ceiling, the R.U.S.I. Museum is a treasure house of relics and mementoes of great victories and renowned warriors. There is also a most valuable collection of Uniforms, Medals, Ship Models, and models of the battles of Trafalgar and Waterloo.

For Members and their friends, there are private entrances to the Museum from the Institution.

H.M. Forces in uniform are admitted free at the public entrance.

Admission to the general public is 1s.; Saturday after Noon, 6d.

SECRETARY'S NOTES

February, 1930.

Anniversary Meeting.

The Anniversary Meeting will be held on Tuesday, 4th March, at 3.30 p.m. The Council will present their Annual Report and Accounts, and the election to vacancies on the Council will take place. The presentation of the Gold Medal for the 1929 Essay will take place.

The Chair will be taken by the Chairman of the Council, Admiral Sir George P. W. Hope, K.C.B., K.C.M.G.

Vice-Presidents.

General The Viscount Byng, G.C.B., G.C.M.G., M.V.O., LL.D., has been elected a Vice-President, vice the late General Lord Horne, G.C.B., K.C.M.G., D.C.L., LL.D.

Marshal of the Royal Air Force Lord Trenchard, G.C.B., D.S.O., D.C.L., LL.D., has been elected a Vice-President to fill the existing vacancy for an Officer of the Royal Air Force.

Council.

The following Members of the Council, having completed three years' service, retire at the Anniversary Meeting:—

Lieut.-General Sir W. Hastings Anderson, K.C.B.

Lieut.-General Sir David G. M. Campbell, K.C.B.

Colonel The Lord Amptill, G.C.S.I., G.C.I.E.

Brig.-General The Earl of Lucan, K.B.E., C.B., T.D.

Colonel C. W. Trotter, C.B., T.D.

The vacancies will be filled at that Meeting in accordance with Chapter 3 of the Bye-Laws.

Air Chief-Marshal Sir John M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., succeeds Marshal of the Royal Air Force Sir Hugh M. Trenchard, Bart., G.C.B., D.S.O., as an ex-officio Member of the Council on becoming Chief of the Air Staff. Captain T. F. P. Calvert, D.S.O., R.N., succeeds Rear-Admiral C. J. C. Little, C.B., as an ex-officio Member of the Council on taking up the appointment of Director of the Royal Naval Staff College.

New Members.

The following Officers joined the Institution during November, December and January:—

ROYAL NAVY.

Sub-Lieutenant M. Lindsay, R.N.

Lieutenant-Commander H. H. Maclean, R.N.R. (retired).

Rear-Admiral J. C. W. Henley, C.B.

Commander J. S. M. Mackenzie-Grieve, R.N.
 Major C. A. C. Lucas, O.B.E., R.M.
 Rear-Admiral C. V. Osborne, C.M.G.
 Lieutenant G. L. Bodoano, R.N.
 Captain R. S. Burgess, R.M.
 Lieutenant R. F. Cornwall, R.M.
 Acting Sub-Lieutenant C. H. Wells, R.N.
 Lieutenant T. V. Briggs, R.N.
 Sub-Lieutenant J. May, R.N.
 Captain R. S. Goff, D.S.O., R.N.
 Commander C. S. Holland, R.N.
 Captain T. F. P. Calvert, D.S.O., R.N.
 Lieutenant G. P. Packard, R.N.
 Commander L. S. Wadeson, Royal Indian Marines.

ARMY.

2nd Lieutenant T. M. Synge, Royal Tank Corps.
 Captain J. O. Fulton, 1st K.G.O. Gurkha Rifles.
 Captain G. F. Hopkinson, M.C., North Staffs. Regt.
 Major E. B. Mangin, M.C., Bombay Pioneers.
 Captain G. M. Gamble, The Sherwood Foresters.
 Captain R. H. R. Cumming, Hodson's Horse.
 Lieutenant E. Robinson, East Lancs. Regt.
 Lieutenant-Colonel P. S. Rowan, D.S.O., The Wiltshire Regiment.
 Lieutenant G. Adcock, Prince of Wales' Volunteers.
 Captain P. E. F. Chirnside, 8th Hussars.
 Captain H. A. Macpherson, East Yorkshire Regiment.
 2nd Lieutenant A. C. W. May, Highland L.I.
 Captain D. S. Norman, East Yorkshire Regiment.
 Lieutenant (late) H. S. Cuerden, R.A.S.C.
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 Captain T. C. A. Clarke, Royal Tank Corps.
 Captain H. M. Hamilton, 6/13th Frontier Force Rifles.
 Captain J. C. Preston, M.B.E., Bedfordshire & Hertfordshire Regiment.
 Captain J. N. Cheney, 60th Rifles.
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 Lieutenant G. Douglas, Highland Light Infantry.
 Captain C. E. Blad, York & Lancaster Regiment.
 Lieutenant C. K. Hamilton, R.A.
 Captain E. A. M. Cleveland, M.C., The King's Regiment (Liverpool).
 Captain R. M. J. Goldie, King's Own Royal Regiment.
 Lieutenant L. F. de V. Carey, R.E.
 Lieutenant-Colonel F. P. Nosworthy, D.S.O., M.C., R.E.
 Lieutenant J. S. Newth, 9th London Regiment (T.A.).
 Lieutenant B. D. Jones, The Welch Regiment.
 Captain D. A. Brown, M.C., Royal Signals.
 Lieutenant A. M. Finlaison, The Cameronians.

ROYAL AIR FORCE.

Pilot Officer W. J. B. Elliott, R.A.F.
 Flight Lieutenant H. A. Haines, D.F.C., R.A.F.
 Squadron Leader W. C. Clark.
 Flight Lieutenant R. Ivelaw-Chapman, D.F.C., A.F.C., R.A.F.
 Flight Lieutenant W. A. Tattersall, R.A.F.
 Wing Commander R. M. Bayley, D.F.C., R.A.F.
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 Flight Lieutenant C. J. Collingwood, R.A.F.
 Flight Lieutenant J. G. Walser, M.C., R.A.F.
 Group Captain J. B. Bowen, O.B.E., R.A.F.
 Wing Commander O. T. Boyd, O.B.E., M.C., A.F.C., R.A.F.
 Flying Officer E. A. Jones, R.A.F.

Gold Medal Essay, 1929.

The following additional Essays have been received —

"The race is not to him who has the longest legs to run, nor the battle to the people who shoot the biggest gun."

"There be three things which are too wonderful for me: the way of an eagle in the air, the way of a serpent upon a rock, the way of a ship in the midst of the sea."

"Cirrus."

Results of the Competition

The following is the result of the competition for the Gold Medal of the Royal United Service Institution and the Trench Gascoigne Prize:—

Gold Medal and First Trench Gascoigne Prize:

Wing Commander C. J. Mackay, M.C., D.F.C., R.A.F.

Second Trench Gascoigne Prize:

Brigadier-General H. Rowan-Robinson, C.M.G., D.S.O.

Honourably Mentioned:

Lieutenant-Colonel C. L. Day, Royal Signals.

Flight Lieutenant G. M. Knocker, R.A.F.

Special Facilities for Junior Officers.

The special attention of Members is invited to the new Bye-Law governing the entrance of Junior Officers to the Institution, which was passed at the last Annual General Meeting. The terms are as follows:—

"Commissioned Officers of the Home, Dominion, Indian and Colonial fighting Services and their Reserves, of three years or less seniority as such; Midshipmen, R.N., R.N.R. and R.N.V.R.; and Naval, Military and Air Force Cadets, shall be admitted to Membership without Entrance Fee on payment of the first annual subscription of £1 5s.

"In all cases eligibility for such Membership shall be governed by para. 1 of Chapter 2.

"An Officer who is admitted without entrance fee and who subsequently fails to pay his annual subscription regularly or resigns, shall not be re-admitted without payment of such fee, notwithstanding the fact that he may, by virtue of his rank or seniority, be otherwise eligible for such concession.

"Officers joining under this Bye-Law will date their Membership from 1st January of the year in which they join. They shall not have the privilege of becoming Members in October and of paying no subscription on the ensuing 1st January."

Lecture on "The Chemistry of War."

The Chair will be taken by Admiral of the Fleet Sir Henry F. Oliver, G.C.B., K.C.M.G., M.V.O., LL.D., at the lecture on "The Chemistry of War," to be given by Mr. F. A. Freeth, O.B.E., F.R.S., D.Sc., Ph.D., on Wednesday, 19th March.

Additional Naval Lecture.

Commander Sir Charles D. Burney, C.M.G., R.N., will lecture on a date in March to be announced later, on "The Influence of Aircraft on Sea Power."

JOURNAL

Notes for Guidance of Contributors.

The Editor has been asked to publish some notes for the guidance of those who desire to offer contributions to the JOURNAL. The following are the principal points to which attention is invited:—

- (1) Preference will be given to articles which assist in the "promotion and advancement of naval and military science and literature" in practical form and which are written with an up-to-date and first-hand knowledge of the subject with which they deal.
- (2) Historical articles should point some definite lesson for the present or future and not merely recapitulate accounts of episodes of the past.
- (3) Articles of interest to students of war in all three Services are preferable to those of a highly technical nature or of such restricted interest that they could only appeal to a very limited number of our readers.
- (4) As a general rule articles should not exceed 3,000 words in length. Apart from considerations of space, experience shows that the short article which makes its points concisely is more effective and more widely read than one of a long and rambling character.
- (5) Contributions intended for the JOURNAL should be addressed to the Editor. They should, if possible, be typed (double spacing), but short articles in legible manuscript can be accepted if a typewriter is not available.
- (6) The Editor is authorized to obtain official sanction for the publication of articles written by serving officers; it must be clearly understood that nothing written by such officers can be accepted for the JOURNAL without this sanction being obtained.
- (7) Except where contributors are good enough to offer articles without remuneration, this will be paid at the authorized rates.
- (8) Attention is invited to the note on the first page of each JOURNAL regarding authors alone being responsible for their opinions: also to the notice at the head of "Correspondence."

Copies of the Frontispieces.

A limited number of copies of the coloured Frontispieces, published in recent numbers of the JOURNAL, are available for sale and can be supplied, post free, for 1s. 6d. each; 2s. 6d. a pair; 3s. 6d. for three; or 5s. the complete set.

Price of Journal to Non-Members.

The price of the JOURNAL to Non-Members, as from February, 1927 number, is 7s. 6d., or the four quarterly numbers will be sent for an annual subscription of £1 10s.; post free in either case.

Trade Discount.

Recognised firms can now be supplied with not less than one dozen copies of the JOURNAL at a time, at a wholesale price of 7s. each copy, the buyer to collect from the Institution.

Additional Copies of the Journal.

Additional copies of early numbers of the JOURNAL, if available, can be supplied, post free, to Members at :—

3s. for JOURNALS prior to February, 1927.

4s. for the JOURNAL of February, 1927, and later.

LIBRARY

Facilities for Borrowing Books.

The special attention of Members who are now paying the new annual subscription of £1 5s. od., is invited to the fact that they are thereby entitled to the full privileges of the Lending Library without further charge. These include the right to have sent to them not more than four volumes at a time on loan, the Member paying postage both ways.

Old Members who have not wished to conform to the new arrangement and who are still paying the original subscription of £1 1s. od., must pay an additional subscription of 10/- per annum in order to belong to the Lending Library.

All Members are, of course, free to use the Library when they visit the Institution.

Rules Governing Return of Books.

The attention of Members is invited to the following Regulations governing the retention and return of books :—

- (1) Certain books, for which there is a special demand, must not be retained longer than a fortnight after the date of receipt. A notice to this effect will be found in the book.
- (2) In the United Kingdom.—Books must normally be returned within one month of the date of issue; but the Librarian is authorised to make extensions of one month at a time on application by a Member, up to a maximum of three months from the date of issue, if the work is not required by another Member.
- (3) All Stations Abroad.—Books must not be retained for more than seven months from the date of issue.

Members are specially requested to conform strictly to these regulations, as failure to do so causes much inconvenience to others and involves the Institution in unnecessary expense and clerical labour.

MUSEUM

Special Exhibition.

The Special Exhibition of Aircraft Models will close at the end of February, and in its place will be installed a series of Dioramas depicting famous Military Engagements, which are kindly being lent by the Department of Overseas Trade.

Additions.

- (8311) Bronze bust of the late Admiral of the Fleet Sir F. C. D. Sturdee, G.C.B., K.C.M.G., C.V.O.
- (8312) Collection of medals.
- (8313) Collection of weapons.
- (8314) Red Ensign from "Q" Ship "Mavis," torpedoed on 3rd June, 1917.
- (8315) Water-line model of submarine "Osiris."
- (8316) Model of "E" Class submarine.
- (8318) Case of models of ships which took part in the battles of Coronel and Falklands.
- (8319) Set of dummy aeroplane bombs.

Attendance.

The amount taken for admission during the past Quarter was:—

£145 3s. od. in November.

£114 3s. od. in December.

£152 4s. od. in January.

Purchase Fund

This Fund has been opened to assist in the purchase of new exhibits. The Council hope that it will receive the support of Members interested in the Museum

	£	s.	d.
Balance in hand	45	3	5
" H.C.W."	0	3	4
K.S.L.I. & Hertfordshire Regiment Journal (H.B.) ..	0	10	6

£45 17 3

Purchased:—

Model of Drummer.	£6	10	0
" Artillery Officer	5	0	0
Models of H.M.S. " Sydney " & " Emden " ..	2	0	0
	<hr/>		
	13	10	0
	<hr/>		
	£32	7	3



A NIGHT AIR RAID
THE VICKERS "VIRGINIA" BOMBER

THE JOURNAL

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CO-ORDINATION OF IMPERIAL DEFENCE

BY MAJOR WALTER ELLIOT, M.P.

On Wednesday, 23rd October, 1929, at 3 p.m.

ADMIRAL SIR GEORGE P. W. HOPE, K.C.B., K.C.M.G., in the Chair.

THE CHAIRMAN in introducing the Lecturer remarked that he must be well known to the audience as a member of the late Government ; that he had travelled widely throughout the Empire, and was a great authority on Imperial matters. He had just returned from South Africa, where he had represented the Empire Marketing Board.

LECTURE.

THAT the problem of co-ordinating Imperial Defence is an immense one must be apparent as soon as we start to review the field which has to be covered. To begin with, the British Empire comprises a quarter of the world's surface, and includes 24 per cent. of its population. It is organized, if organization it can be called, into two Empires, a Commonwealth of Nations, and a Condominium. The existing inter-Imperial bodies are the Crown, and one or two rather shadowy committees. Until quite recently we thought the Privy

Council, through its Judicial Committee, the legal "House of Lords," provided a link second only in importance to the Crown; but this is now undergoing revision. The final appeal tribunal of the Empire is itself *sub judice* to-day. We can see, therefore, that the field of co-ordination is both very wide and almost untilled.

The two Empires are the Indian Empire and the Colonial Empire. The Indian Empire comprises two parts, namely, British India and the Native States. British India covers one million square miles; the Native States 800,000 square miles. The Indian administration is responsible to the Crown through the India Office and the Secretary of State for India, who is an officer of the Parliament of the United Kingdom; but, more and more, control and initiative are coming to reside in India, with the Viceroy and the Indian Legislatures.

The Colonial Empire covers two million square miles, and includes 50 million people, but it has no direct organized connection with the neighbouring parts of the Empire. It is responsible to the Crown through the Colonial Office and the Secretary of State for the Colonies, who is also an officer of the Parliament of the United Kingdom. Therefore, any Defence co-ordination that exists between these two Empires exists through a civilian body, the United Kingdom Cabinet.

The Condominium, namely, the Anglo-Egyptian Soudan, has again no direct connection with anything else, and is administered through the Foreign Office.

But these bodies, these two Empires, the Indian Empire with 1,800,000 square miles, the Colonial Empire with 2,000,000 square miles, the Condominium with 1,000,000 square miles, have quite a real co-ordination compared with what exists amongst other units of the Empire. They are co-ordinated by a standing body, the United Kingdom Cabinet. The other units of the Empire are co-ordinated only by the Imperial Conference, which has not even a permanent Secretariat. The British Commonwealth of Nations proper, that is to say, the self-governing Dominions, are independent units in almost every sense of the word. They have practically no organized connection with this country or with each other. There is, for instance, no such thing as "His Majesty's Government." There is H.M. Government in the United Kingdom, H.M. Government in Canada, and H.M. Government in Australia and so on. There are eight such Governments: those in the United Kingdom, Canada, Australia, South Africa, the Irish Free State, New Zealand, Newfoundland and Southern Rhodesia. What would happen if some general interest were affected and conflicting advice were tendered to the Crown by various advisers, nobody can say. No machinery exists for resolving that deadlock.

It will be seen that I have not described an Empire according to any previous interpretation of the word. I have described a very loose alliance or entente. How can an alliance be co-ordinated? It can be co-ordinated only through political action, and delicate political action at that. The primary steps must be taken by the Governments, even though these primary steps are followed up by the Departments. The classic example is the Anglo-French Entente, where a general agreement come to by the Governments was followed by military and naval conversations, which proved in practice an example of very close co-ordination. The essential fact, however, is that in all such cases political co-ordination is the first step, and military co-ordination only the second.¹

Inter-Imperial co-ordination is advisory, not executive, and both the big Imperial co-ordinating bodies are advisory only. The Imperial Conference is the primary Empire co-ordinating body, the political co-ordinator; and the Committee of Imperial Defence is the co-ordinator of Departments. To the Imperial Conference each State comes to-day with overwhelming pre-occupations as to its own problems, and these in the main are civil in their character. In special circumstances the units have co-operated in the past and would do so again. The Great War was infinitely our most extensive attempt at co-ordination of any kind. The figures of men raised may be recalled.

British Isles	..	..	..	5,700,000 men.
Canada	..	..	..	628,000 „
Australia..	..	..	..	412,000 „
New Zealand	..	..	..	128,000 „
South Africa	..	..	..	136,000 „
India	..	..	..	1,440,000 „
The rest	..	..	..	134,000 „

The effort made by all the portions of the Empire was very considerable, but, of course, the effort made by the United Kingdom was pre-eminently the greatest.

These were war-time efforts; they were *ad hoc* efforts. Nowadays, when these States come into the Imperial Conference, they are not thinking of the past, they are thinking, more particularly the young countries, of the future. The figures for the inter-Imperial armed forces of to-day, amongst which any co-ordination would take place, are interesting. An examination of the forces maintained will, of itself, show how far co-ordination is possible.

¹ I do not deal with purely naval affairs because very few of the factors which I have to describe apply to naval matters.

Take the Empire figures and examine them along with comparable figures for other countries. If one takes the Treaty-limited group of nations, the Powers whose forces were cut down under the Treaty of Versailles, one finds Austria with 20,000 men, Bulgaria 32,000 men, and Hungary 35,000. That is the "disarmed" standard. Each of those Powers has roughly a population of about six millions. Then we have the "storm-centre" group of Europe—Yugoslavia, Czechoslovakia, and Rumania, the smaller Powers; and Poland, Italy, and France, the larger. Yugoslavia, Czechoslovakia and Rumania, with populations of about 13 millions, have from 108,000 to 185,000 men each, and Poland, Italy, and France, with populations ranging from 30 to 40 millions, have forces of 250,000, 304,000 and 540,000 men respectively. Let us compare with these the strength of the Empire's active forces. We have the following figures:—

United Kingdom	..	..	184,000 men.
Canada	..	..	4,400 "
Australia..	..	..	2,600 "
South Africa	..	..	7,700 "
New Zealand	..	..	515 "
British India	..	..	234,000 "

New Zealand is, perhaps, a more formidable military power than that figure would indicate!

I think it is quite clear from these figures that in most parts of the Empire land forces are maintained to-day for the purpose of internal order alone. The Dominions I have mentioned have all of them greater populations than the Treaty-limited Powers. We have Austria, Bulgaria and Hungary with populations of about six millions, and forces of from 20,000 to 35,000, and we have Canada, Australia and South Africa with populations of from six millions to nine millions, and forces of from 2,600 to 7,700. Even the figure for British India, namely 234,000, is related much more to the population figure of India itself than to the problems of external defence. The Army of India is smaller than the Army of Poland, though the population of India is ten times greater than that of Poland. A still more striking example is in the forces maintained in West Africa. In that country the frontier runs between British territory and that belonging to France, incomparably the greatest military Power in the world; moreover, this frontier is one with no mountain barriers, and it is 4,000 miles long; yet we maintain there only five battalions and three companies of infantry, and two batteries of artillery.

The expenditure of different Empire countries on defence is as follows:—

			£	s.	d.	
United Kingdom ¹	..	..	2	6	4	per head.
Canada	..	..	0	5	9	„
South Africa	..	..	0	3	1	„
New Zealand	..	..	0	14	3	„
India	..	..	0	2	2	„

We may compare these figures with those for the Treaty-limited group, the "disarmed" Powers :—

			£	s.	d.	
Austria	..	..	0	7	1	per head.
Bulgaria	..	..	0	7	2	„
Hungary	..	..	0	9	6	„
Germany	..	..	0	10	4	„

The same lesson is to be drawn from both these sets of figures, namely, that the newer countries consider their fighting expenditure as being for constabulary problems rather than for war potentialities.²

That being so, the problems of inter-Imperial co-ordination are problems of co-ordinating small forces, i.e., constabulary forces, which come into action on the basis of police, rather than on the basis of armies. An interesting commentary on this is to be seen in the increasing use of air transport to move actual armed bodies. The bringing of constabulary, i.e. armed forces, to deal, not with organised opposition, but with the unorganised opposition which internal disorder produces, involves the handling of very small bodies indeed; therefore, the air transport of actual units enters into the realm of practical usage. I came through the aerodrome at Heliopolis two or three weeks ago, and met there the commander of an Air Force unit which had transported troops from Cairo to Jerusalem in connection with the recent riots in Palestine. Within seven hours of being warned, units of the Cairo garrison were in action in Jerusalem. That is a speed of movement which it would be quite impossible to parallel in any other way. The units so despatched were tiny in numbers, and would not have been of use if they had encountered large organized opposing forces; but in a case like this it was of enormous advantage to move these small units very rapidly. Here, probably, lies the germ of an entirely new force, which one might call the Air Marines. I give this as an example of the way in which problems and their solutions present themselves to the layman's mind, and the sort of suggestion which you might have to deal with in a committee of the future.

¹ Compare United States of America, £1 19s. 10d. per head.

² The subsequent action of Australia in its drastic reduction of defence expenditure strikingly reinforced this contention.

In all these questions the United Kingdom itself holds an exceptional position. The United Kingdom is responsible directly, through Parliament, to the Crown for the Empire of India and the Colonial Empire. In addition, it has problems as a European State, which certainly do not fall into the same category as those of the rest of the Empire. Indeed, it is rather terrifying to anybody, certainly to any soldier or any person concerned with the defence organization of the country, to realize the tremendous undefined liabilities which this country has undertaken under some of the recent Treaties which have been signed. The Locarno Agreements bind us, in the case of a flagrant violation of Article 2 of the Treaty, to go to the immediate help of the party against which such violation or breach has been directed: that is to say, to make war upon France or Germany—perhaps. It is a pretty big obligation, but it is not greater than that involved in the Treaty of Lausanne of 24th July, 1923, which regulates that storm-centre, the Dardanelles Zone, The High Contracting Parties—in any case France, Great Britain, Italy and Japan—acting in conjunction are hereby bound to meet any violation of the provisions of the Treaty by all the means that the Council of the League of Nations might decide for this purpose. The Council of the League of Nations, it may be remarked, is a body which in the case of Mosul, for instance, recommended a very definite line, and it might in future take a very definite line again.

You will notice that, in connection with the Turkish Treaty, I deliberately used the words "Great Britain." Many of our Treaties, nowadays, are signed by the British Empire, but not all; there are certain Treaties, such as this, in which the Treaty responsibility falls on the United Kingdom alone. In such cases the responsibility for co-ordination rests on the Service departments in Great Britain, possibly in subsequent collaboration with their opposite numbers in the countries named. I do not think that much co-ordination has been worked out along these lines. It is, however, interesting to note, that, theoretically, military collaboration is accepted and even enjoined between the United Kingdom, France, Italy and Japan, while no such provisions exist anywhere as between Great Britain and the other Imperial self-governing units. These considerations, however, as has been said above, affect the United Kingdom alone.

The problems, then, of the political co-ordination of Imperial Defence have to be conditioned, first of all, by the fact that the co-ordinating body is advisory and not executive. In the second place, the co-ordination of Imperial Defence affects units whose preoccupations are with civilian problems, and not with military or naval problems. To a certain extent, when they come in conference they are preoccupied, and bound to be preoccupied, with their own problems, the problems of

breaking in and subduing the enormous new territories with which they have to deal. Moreover, in certain of the units, such as South Africa, they are preoccupied also with novel permanent problems such as those of the relationship between the black and white races.

Supposing it, however, to be agreed that inter-imperial co-operation is desirable for a given set of conditions, the bodies concerned in that co-operation proceed to the next step, that of the technical conversations which are necessary to make that co-operation effective. The body concerned is advisory: the Committee of Imperial Defence. A short general consideration of this body may be of interest.

The Committee of Imperial Defence was set up, in the first place, because the mere problems of defence nowadays demand a range of knowledge so wide that no one set of technical experts can possibly master the whole of it. Even in departmental conversations the layman, the civilian, in some cases even the politician, must sit side by side with the technical expert in committee, for there are many problems which cannot be decided on the sole responsibility of the technical, military, naval or air advisers.

Take the simple question of the civil resources of a nation. The war resources of a nation are greatly conditioned, for example, by its control of power and fuels. In any council determining the possible dangers to this or that country, the fuel factors must be of vital importance. The coal production—I give the 1913 figures—amongst the English-speaking races was as follows:—

United States..	..	..	508,000,000 tons.
Great Britain..	..	..	280,000,000 „
British Dominions	..	..	37,000,000 „

The figures for the Latin nations are as follows:—

France..	..	..	40,000,000 tons.
Italy ..	..	..	500,000 „
Spain ..	..	..	3,500,000 „

Even in 1924 these last three Powers only totalled 50,000,000 tons, an amount which is equalled by the production of two British counties, Lanarkshire and South Yorkshire. To take a later figure, the United States, with 130,000,000 people, produced 530,000,000 tons; Japan, with 77,000,000 people, produced 21,000,000 tons.

It is obvious that there is a great disproportion between the resources of these two groups, and these are factors which of necessity play a great part in the consideration of defence and of the possible dangers which any country has to meet to-day.

Take another factor: a local factor, that of roads. One road-point in the United Kingdom which in 1913 carried 200 tons of traffic a day,

in 1922 carried 1,800 tons ; in 1925, 3,100 tons, and in 1928, 5,750 tons. It is clear that there is another set of changing factors enormously affecting possible defence considerations. The factors are such that it is impossible to bring them completely into one table, or to hold them entirely in review on one particular page. They must be considered and co-ordinated by means of a committee—a council. It is an old theory in military matters that a council of war never fights, and never takes a really active executive decision. The problem of the future is to work a council in such a way that it is possible for it to lead to an executive decision. Figures and facts will have to be examined and considered, not only by committees but by mixed committees, that is to say committees on which both technical men and laymen are sitting. Therefore, the whole problem of co-ordination is how far the laymen and the technical specialist can meet and jointly apply the methods of committee.

Co-operation between the layman and the technical expert is a problem which faces us all, in every walk of life, in the immediate future. To this, in the case of Great Britain and the other self-governing units of the British Empire, is added the necessity for a close collaboration between various Governments through their political chiefs, the pre-occupied members of the civilian Cabinets. This collaboration cannot be engendered formally or in haste. It must be the result of a long habit of forbearance and of common traditions and doctrines. The problems of a committee impose especially a new and difficult set of responsibilities on the fighting Services, because this is a line of country which they have not previously had to explore, and which in many cases they have been actively discouraged from exploring. But they are not peculiar to the fighting Services. They are being faced also by the scientists, the agriculturists, even the administrators of the Civil Services. The executive decisions of the future, the joint co-ordinating decisions on which everything depends, whether in defence, in applied science or in administration, will have to be decisions of persuasion, and not of command, and those decisions will need to be framed by mixed committees in which the technical men, either of the fighting Services or of others, will have to be in association with people whom they may not know very well, many of whom they dislike, and some of whom, quite possibly, they despise.

DISCUSSION :

MAJOR-GENERAL C. BONHAM-CARTER : The only point I want to make will perhaps be cheering to Major Elliot. We in the Army are trying, by education,—and I believe the other Services are doing the same—to fit ourselves to take part in the mixed Committees to which he has referred. We hope that the education

of its Service members will help these committees to come to decisions and act in very much the same way as would a Commander-in-Chief, in spite of the presence of politicians whom the lecturer fears we hold in some contempt.

At Woolwich and Sandhurst the Cadet learns the way in which the Empire is governed, and the part taken by the various agencies of Government in the Empire. We try to teach him what has been clearly set out in the recently published book by General Maurice—that war is not confined to the action of the fighting Services, but is really the application to war purposes of the ordinary activities in the life of the nation.

This education is continued at the Staff College and at the recently established Imperial Defence College, where not only the fighting Services, but also the Civil Service, are now represented, so that both may learn to work together and to understand the difficulties of the statesmen whom they may be called upon to advise and help.

COMMANDER V. H. DANCKWERTS: I do not myself think that the statistical investigation of populations and armies which Major Elliot carried out on the blackboard touched the real underlying point. His conclusion is probably correct, but the reason surely is a fact he did not mention, that these countries, Australia, South Africa, etc., are separated from each other and from the rest of the world by great distances of sea, whereas the other Powers which he mentioned in Europe are all jostling up against each other. The sole reason for the numbers of the defence forces in the other parts of the Empire being reduced as they are is the factor of sea power, which is their main defence.

I was very sorry to see his final conclusion, as to the real problem of co-ordination, namely, how far laymen and technical specialists can master and apply the methods of committee, for I had hoped that we were going to get down to a far greater problem, the problem of co-ordination between layman and layman from the various Dominions, and between technical people and technical people also from the various Dominions. That seems to me a much greater problem than the comparatively departmental one of how the laymen and experts of an individual Dominion may agree amongst themselves. I hope that Major Elliot will indicate whether he has any further solution to offer than the bare statement that there is at present no co-ordination between these bodies at all.

THE LECTURER: I had armed myself with the statistics for the various parts of the Empire with regard to naval defence, and though I have not put these up, I may say that the same disproportion holds good there. It may be because of the contribution of this country to naval defence that these other countries are able to cut down their naval expenditure, but in fact they do cut down on naval expenditure as much as they do on army expenditure. The expenditure on naval defence in the various countries is as follows:—

Great Britain	£1	5	1	per head.
Canada		1	4½	„
Australia		10	9	„
New Zealand		9	9	„
South Africa		1	0½	„

In South Africa I have counted only the European population. But it is clear from these figures that whatever the realities of the situation with regard to naval defence may be, so far as the Overseas part of the Empire is concerned there is not what might be called any enthusiastic support for the £1 5s. 1d. which the home country spends per head on that task.

The question of co-operation between layman and layman, which Commander Danckwerts also raised is, I am afraid, one which would have taken me right outside even the very wide title of to-day's remarks. The co-ordination of Imperial Government is, of course, a subject for an address in itself. As a matter of fact we are only just fumbling our way towards the problems of how to get a quarter of the earth's surface and a quarter of the earth's population to co-operate. We are working upon it on some relatively simple matters in scientific affairs. These are dealt with by Committees sitting in London with funds voted to them from various parts of that Empire, and spending the money by a majority vote of the Committee or Council concerned. But I would not insist that that is the line along which we shall solve our future problem of co-operation in defence.

It is a problem which we are all thinking about, but so far there has only been one vigorous attempt at co-ordination of civil Imperial affairs, and that was carried out by George III and led to a very serious division of opinion, and the setting up of the United States of America.

I was glad to hear General Bonham-Carter's remarks. The only reason for my own address this afternoon was to buttress up the same argument as far as possible, from the layman's side, the necessity for joint meetings not merely with soldiers, but also with civilians. The great function a layman can carry out is to put clear and intelligible questions to the technical man. It is the technical man's business to answer those questions, but the technical man, on his side, can reasonably demand from the layman that he shall ask him clear questions to which he can give a clear answer. That is what the technician finds it most difficult to get out of the layman. It is for the expert to see that he is not fobbed off by the incurable woolly-mindedness of the human brain, and that he does not leave the committee until he gets a definite reply, as to what the problem may be which he is being asked to solve.

THE CHAIRMAN :

The Lecturer has covered a very wide field and has given us a new and original line of thought to ponder over. I am very glad that he brought out the point, to which we do not often pay sufficient attention, that the Empire is an alliance or entente rather than an Empire in any true sense of the word. I do not think that is sufficiently regarded, and, as he pointed out, it has a very important effect on this great question of the co-ordination of Imperial Defence.

Commander Danckwerts remarked that this co-ordination of Imperial Defence depends in the last resort on sea power. I agree with that. Moreover if our sea power is allowed to diminish too much, it will be difficult to keep the Empire together, and the need for co-ordination will vanish.

The usual votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE CANADIAN DEFENCE FORCES¹

BY BRIGADIER J. SUTHERLAND BROWN, C.M.G., D.S.O.,
Canadian Permanent Force

I.—THE FRENCH PERIOD.

NO permanent settlement was effected in what is now the Dominion of Canada until Samuel Champlain founded Port Royal in Nova Scotia in 1604, and Quebec in 1608. Since those days a few scattered hamlets on the banks of the St. Lawrence have grown to be a great country of 10,000,000 people standing fifth in trade among the nations of the world.

Benjamin Sulte asserts that only 4,000 individuals came from France to Canada between 1634 and 1759. Before 1634 only 300 French immigrants had settled in Canada, while none came after 1759. Abbé S. Lortie claims that not more than 5,800 French came to Canada between those dates; these 5,800 have increased in three centuries to over 4,000,000 who now reside mostly in the Province of Quebec. It has been proved that out of some 406 families who settled in Canada between 1615 and 1666, all came from Northern France, mainly Normandy and Perche; they were peasants and not sea-faring people as frequently supposed.

The principle of universal military service was adopted from the earliest days. The country was divided into seigniories, the seigniors being gentlefolk, mostly ex-officers of the army. To them the settlers paid rent and rendered military and other service in return for land tenure. The men were continually being called from their homes to fight against the English of the Thirteen Colonies, or more often against the hostile Iroquois.

Different laws were enacted from time to time with reference to military service which was always causing difficulties between the colonists and the regulars. These dissensions reached a climax early in 1759, when the Governor, Vaudreuil, took up the case of the militia.

¹ The author wishes to stress the fact that the views here expressed are entirely personal and in no sense official.

A final re-organization was made, under Montcalm, who divided the militiamen into three categories and distributed these as follows :—

7,511 in the Quebec District.
1,303 in the Three Rivers District.
6,406 in the Montreal District.

Total 15,220

His idea was to take the best men for continuous service, while liberating the remainder for work on the farms, thus leaving them to be called up only in extreme emergency. There were about 4,000 in the first category, distributed fifteen per company to regular units and an equal strength per company to the colonial units. Here we have the genesis of the Canadian Militia.

II.—FROM CONQUEST TO CONFEDERATION.

During the period of military government the military commanders provided for the employment of the French Canadian militia, and 300 of them served in Pontiac's rebellion. This contingent was raised, equipped and concentrated in fourteen days.

At the revolt of the Thirteen Colonies, the rebels sent a delegation to Canada, but obtained little or no active support. Their visit put the Canadian habitant into a neutral attitude, and when the militia were called out very few responded. The seigniors were loyal. Over 500 of the French Canadian militia, under Colonel Noel Voyer, rendered splendid service in the siege of Quebec by Arnold and Montgomery.

The migration of the United Empire Loyalists commenced in the early days of the Revolution and rapidly increased as it became apparent that the independence of the colonies would be recognized: 10,000 came to Upper Canada. Many of them had served in loyalist regiments during the war. These patriots made a splendid foundation for the militia of the Upper Province.

The Constitutional Act of 1791 divided Canada into two provinces, Upper Canada (now Ontario) and Lower Canada (now Quebec). It must be remembered that Nova Scotia and New Brunswick were separate colonies. All these colonies passed Militia Acts, which although differently worded, were markedly similar in their provisions, for they all established universal service and the *levee en masse* with liability ages from 18 to 60 (16 to 60 in the Maritime Provinces). The Provinces were divided into regimental areas, which generally coincided with the counties. Provision was made for training, equipment and arms.

These Acts were put to a hard test during the war of 1812, which raged, often violently, on the frontier until the end of 1814. At this time there were four regular regiments in Canada—the 8th, 41st, 49th and 100th Foot. Six regiments of Colonial regulars were raised :—

The Canadian Fencibles.

Canadian Voltigeurs.

Royal Newfoundland Regiment.

New Brunswick Regiment.

Royal Veterans.

Glengarry Light Infantry.

The Canadian Militia in the various Provinces was divided into :—

The Sedentary Militia ;

The Embodied or Incorporated Militia.

The Sedentary Militia consisted of every able-bodied man in the country according to ages laid down in the Militia Acts. They were enrolled by the local captain and attended usually four parades and one inspection annually. There were at this time enrolled 52,000 out of a population of 350,000 in Lower Canada, and 11,000 out of 90,000 in Upper Canada.

The Embodied Militia was composed of units raised by voluntary enlistment, or by ballot, from the Sedentary Militia. In Lower Canada they were formed into battalions, but in Upper Canada, where the country was at this time sparsely settled, the usual organization was flank companies. All were bachelors under 40 years of age, liable to six days training a month in peace and continuous service in war. In conjunction with the regulars they rendered useful service and at the battle of Lundy's Lane they fought with dogged courage in this, the most sanguinary battle of the war. The Militia of Upper Canada combined exceedingly well with the regulars whom they emulated in every way.

The Rebellion of 1837 did not affect the Maritimes, but only the Canadas. As the Lieutenant-Governor of Upper Canada had sent all regular troops to Lower Canada, the rebels in the Upper Province were dealt with by the militia only. The militiamen responded in gallant fashion, some 40,000 men turning out. The most spirited fight took place at Prescott, where the rebels were besieged in an old stone windmill.

In Lower Canada 3,000 regulars and about 10,000 to 15,000 militiamen and volunteers turned out from the English speaking male population of militia age. Sharply contested actions were fought at St. Eustache, Napierville and Odelltown.

Several frontier incidents occurred and the possibility of war with the U.S. loomed up. Large reinforcements of regulars arrived. In 1839

there were seventeen battalions and one regiment of cavalry with artillery, all regulars, in Canada. Many battalions of semi-permanent militia and militia were embodied and many selected officers arrived from England for service with them. No war took place. Had it occurred, Upper Canada would have been defended by a force of 50,000 of which 40,000 were militia under professional leadership.

Between the War of 1812 and the Crimean War the size of the British regular garrison kept in Canada was based upon the strength of the U.S. regular army. It was considered that this force supported by the militia could hold the "vitals" until reinforced by more regular troops. Sir James Carmichael-Smith reported after careful investigation and reconnaissance, in 1826, that the defence of the Canadian provinces was feasible with the resources available. Later on most of the regular troops were withdrawn for the Crimea. After the war some regulars came back to Canada and these were increased up to 17,000 in the early 'sixties, when affairs between Great Britain and the Republic took an unpleasant turn.

In 1841 the two provinces were united. The transition of the old militia of universal service into a volunteer militia was gradually but surely taking place. The musters and enrolment of the old militia were still being effected; but the new volunteer regiments raised in the cities were more popular, were better armed and accoutred; they could turn out quicker as a body. A Militia Act passed after the union took official cognizance of the volunteer units. The compulsory clauses were retained but the old militia slowly lapsed.

In 1866, 2,000 Fenians invaded Canada at the Niagara frontier, when they were both numerous and active in the U.S.A. The Canadian authorities, after some initial delay, called out 10,000 volunteer militia and 14,000 responded. After an action at Ridgeway in which the militia were badly handled by their commander, the Fenians retired across the frontier. A few other weak efforts were made by the Fenians.

III.—FROM CONFEDERATION TO THE CLOSE OF THE SOUTH AFRICAN WAR

Four causes brought about the Confederation:—

- (1) A political deadlock, which had seized upon the Canadian Parliament;
- (2) A cure for racial troubles;
- (3) Fear of aggression from the south;
- (4) The termination of the Reciprocity Treaty by the American Government necessitating new markets and new transport routes.

Confederation became effective on July 1st, 1867, and in the session of 1868 a new Militia Act was passed consolidating the Militia Laws of the various provinces, until, in 1869, the militia was reorganized into the Canadian Militia, a federal force more or less as we now have it. The withdrawal of the British regular army which had commenced in 1861 was completed in 1870. Henceforth there were no regulars in Canada, except as garrisons of the fortresses of Halifax, N.S., and Esquimalt, B.C.

The new force was soon put to a test when, in 1870, the Red River Rebellion under Louis Riel broke out, and a force composed of militia with a small number of regulars, under the command of Sir Garnet Wolseley, was organized and despatched to the north-west, moving overland amid great hardships. It took three months to reach Fort Garry (now Winnipeg). The militia was called out in 1870 and 1871 to repel further Fenian Raids. A contingent of Canadian voyageurs was sent to Egypt in 1882.

In 1885, Louis Riel started his second rebellion in the North-west Territories. A force of 5,000 to 6,000 militia was called out in the Central Provinces and despatched to the West, this time by rail and in a few hours, since the C.P.R. had in the meantime been constructed. The force was commanded by Major-General Middleton, Commander-in-Chief in Canada, and, except for his small personal staff, the force was officered entirely by Canadians.

Between 1885 and 1899 there was a gradual improvement in the organization, equipment and training of the militia. The country was divided into military districts over which there were at first D.A.Gs., but later District Officers Commanding. A permanent force was organized for instructional duties and the militia was concentrated annually in 12-day central camps for training. The artillery was re-armed with the new 12-pdr. and the infantry with the Lee-Enfield rifle.

When the Boer Republics declared war, in 1899, Canada was not slow in making known its desires, and the Canadian Government was moved to offer contingents. The first contingent, 2nd Battalion The Royal Canadian Regiment, which had of necessity to be representative of all Canada, was recruited, assembled from all the Provinces, equipped and despatched from Quebec in 14 days. The second contingent, consisting of three batteries of field artillery and two regiments of mounted rifles, was raised and embarked in three weeks. Four other regiments of mounted rifles, Lord Strathcona's Horse and 1,200 men for the South African Constabulary, were afterwards raised in Canada. The Canadians gave some indication in South Africa what they would achieve in any future war of real magnitude.

IV.—FROM 1902 TO THE OUTBREAK OF THE GREAT WAR.

The Colonial Conferences.—The first two Conferences were held in 1887 and 1897 respectively; the third, and more important, in 1902. On this occasion the First Lord of the Admiralty proposed that the Colonies should offer an annual cash contribution for the maintenance of the Navy; the Secretary of State for War proposed the formation of what really amounted to a force of trained reservists of the Imperial Army to be maintained in each Colony. The Canadian ministers objected to these proposals, not so much from the expense involved, but because their acceptance would bring about an important departure from Colonial self-government. In a memorandum then submitted, they went on to say: "The Canadian ministers fully appreciate the duty of the Dominion, as it advances in population and wealth, to make more liberal outlay for those necessary preparations of self-defence which every country has to assume and bear . . . The Canadian Government are prepared to consider the naval side of the defence as well. On the sea coasts of Canada there is a large number of men admirably qualified to form a naval reserve, and it is hoped that at an early date a system may be devised which will lead to the training of these men and to the making of their services available for defence in time of need."

At the same time the Canadian ministers offered to assume responsibility for the defence of Halifax and Esquimalt. It was not accepted. On 20th January, 1905, this offer was renewed and accepted by the British Government on 8th February of the same year.

The fourth Colonial Conference was held in 1907. Some progress had been made in understanding the Dominion point of view, for we find Sir Henry Campbell-Bannerman stating: "We do not meet you to-day as claimants for money, although we cordially recognize the spirit in which contributions have been made in the past . . ."

The British General Staff also submitted the following three axioms for guidance in consideration of all matters connected with defence:—

- (i) That the supremacy of the Empire rests primarily upon the sea;
- (ii) That each portion of the Empire should maintain sufficient troops for self-defence;
- (iii) That there must be mutual support throughout the Empire in a time of emergency.

The following resolution was then adopted:—

"That this Conference welcomes and cordially approves the exposition of general principles embodied in the statement of the Secretary of State for War, and . . . without wishing to commit any of the governments represented, recognizes and affirms the need of developing for the services

of the Empire a General Staff selected from the forces of the Empire as a whole which should study military science in all its branches, shall collect and disseminate to various governments military information and intelligence, shall undertake the preparation of schemes of defence on a common principle, and, without in the least interfering in questions connected with command and administration, shall, at the request of the respective governments, advise as to the training, education and war organization of the military forces of the Crown in every part of the Empire."

The office of Commander-in-Chief of the Canadian Militia was abolished in 1904, and in January, 1905, a Militia Council corresponding to the Army Council was authorized with Brigadier-General Sir P. H. N. Lake, C.B., as the first Chief of General Staff in Canada. The General Staff was organized in the Military Districts in April, 1911, when several officers from the Army, among them the late Major-General Lipsett, were loaned to Canada to initiate the new creation.

From the Confederation until 1905 the country was divided for military command into military districts. In May, 1905, the military districts in Eastern Canada were grouped into four higher commands—the Western Ontario Command, the Eastern Ontario Command, the Quebec Command and the Maritime Provinces Command. The Canadian West retained the military districts, namely, M.D. No. 10, the Provinces of Manitoba and Saskatchewan, the Territory of Keewatin and the districts of Thunder Bay and the Rainy River; M.D. No. 11, the Province of British Columbia and the Yukon Territory; M.D. No. 13, the Province of Alberta and the Territory of Mackenzie.

In April, 1911, as a consequence of the inspection and report of Sir John French, the Higher Commands were abolished and Eastern Canada was organized into six divisional areas, three in Ontario, two in Quebec, and the Maritime Provinces as the sixth. Western Canada, as heretofore, remained in military districts.

The divisional areas passed out of existence towards the middle of the Great War and an organization of military districts was reverted to. But New Brunswick and Saskatchewan becoming separate districts, their total was raised to eleven.

In 1909 another Conference was held in London, dealing mainly with naval matters. This will be referred to again. In 1911 yet another Conference was held, styled "Imperial" for the first time. An important innovation then took place, when Colonel Sam Hughes, the military critic of the Conservative opposition, as well as Sir Frederick Borden, the Minister of Militia and Defence, attended the subsidiary military conference. The following Resolution was recorded:—

"The Committee agreed that, in view of the fact that representatives of the self-governing Dominions at the Imperial Defence Conference of 1909, signified their general concurrence in the proposition, 'that each part of the Empire is willing to make its preparation on such lines as will enable it, should it so desire, to take its share in the general defence of the Empire,' the arrangements required to facilitate the co-operation of the military forces of the Empire fall within the scope of the duties of the local sections of the Imperial General Staff working under the orders of their respective governments and in communication with the central section at the War Office, on which Dominions will be represented."

In the summer of 1910 General Sir John French visited Canada at the invitation of the Canadian Government and submitted a report which shall be referred to later. Between 1910 and 1913 much progress was made in training and organization. Sir Percy Lake was succeeded by Major-General Sir Colin McKenzie. In 1911 the government of Sir Wilfred Laurier was defeated in a general election, and Sir Robert Borden became Prime Minister with Colonel Sam Hughes as Minister of Militia. In 1913 General Sir Ian Hamilton visited Canada by invitation, but no changes were made in organization as a result of his visit. Steady progress was made in elaborating a scheme for an expeditionary force. An unfortunate quarrel between Colonel Sam Hughes and Sir Colin McKenzie caused the latter's resignation in 1913, and Colonel W. (later Lieutenant-General Sir Willoughby) Gwatkin, became Chief of the General Staff and held the appointment until succeeded by Sir Arthur Currie in 1919.

V.—THE GREAT WAR.

The deeds of the Canadian Expeditionary Force in the Great War are too recent to need mention.

The 1st Canadian Division mobilized in August, 1914, at Valcartier, P.Q.; sailed on 30th September, and was concentrated on Salisbury Plain by mid-October, 1914. Its earlier embarkation was only hindered by most regrettable interference in its mobilization. It finally reached France early in February, 1915, although it could have arrived in November, 1914, when the B.E.F. was in need of support; it might also then have been in better shape. It was in the line on the left of the attacking troops at Neuve Chapelle, under orders to attack, when the operations were postponed. It was "blooded" at the Second Battle of Ypres where, notwithstanding individual mistakes, it stood its ground to the eternal honour of Canada and the Empire.

The 2nd Canadian Division arrived in France in September, 1915. The 3rd Canadian Division was made up in France in the autumn and

early winter of 1915-16. With the arrival of the 4th Division in France in July, 1916, the Canadian Army Corps was made up of four strong divisions. From that date the Corps took part in nearly every battle of importance and always gained and held its objectives. Its gala days were the 8th and 9th of August, 1918, when it advanced about fifteen miles into the enemy's lines, captured 9,131 prisoners, 190 guns and more than 1,000 machine guns and trench mortars. Together with the Australian and IIIrd Corps it had created a situation which was a turning point in the war. Ludendorff states that "August 8th was the black day of the German Army in the history of the war."

In addition to the Canadian Corps there were also in France a Canadian Cavalry Brigade, the Canadian Forestry Corps, the Canadian Railway Troops and many medical units, etc.

The total number of men who enlisted in the Canadian Expeditionary Force during the War was 619,636, of whom 556,314 were British born and 63,322 were foreign born. Of the latter 35,599 were born in the U.S.A., many no doubt of British or Canadian parentage. Of the British born 318,728 were born in Canada, 156,697 in England, 47,427 in Scotland, 19,427 in Ireland and the remainder in other parts of the Empire.

The Canadian Army Corps suffered over 200,000 casualties during the War, of whom over 50,000 were killed in battle, while they lost only 130 officers and 2,688 other ranks as prisoners. Many times, in a single day, they captured two to three times the above number of Germans. These figures indicate the Canadians' fighting qualities.

Mention should be made of the work done by the late Sir Willoughby Gwatkin, Chief of the General Staff, who by his tact, energy and ability kept everything going from Ottawa in spite of a difficult Minister in the first two years of the war. Likewise, mention should be made of all the Permanent Force officers, and men, who served with great credit, not only in the P.F. units, but also distinguished themselves under every circumstance of unforeseen difficulty.

VI.—POST-WAR ORGANIZATION.

Instead of raising only the active units required to fill the field formations needed for the war, and then proceeding with the raising of draft-finding units, the then Minister of Defence had authorized the raising of additional active units to the total of two hundred and sixty battalions of infantry and thirteen regiments of mounted rifles, whereas only fifty-four active units were required for the Canadian Corps, inclusive of the two in the Siberian Force. Those units not required for the field were, of course, broken up to find drafts, thus causing much heart-burning

and acute discontent. A few active regiments at the front had also to be broken up because certain localities like British Columbia had more active units at the front than the man-power of the locality could maintain. One of these units broken up in France, in its wrath, raised a monument on which there stood the inscription : " Raised by patriotism, damned by politics." This circumstance, coupled with the fact that the old militia was not used as units, made a complete re-organization necessary after the war. The war units claimed to have their identity preserved, while the old militia did not wish to disappear.

The Government authorized a committee to investigate and report upon re-organization. Its terms of reference, admirably clear and complete, were : " To consider and report how best to give effect to the proposal that with a view to preserving their traditions and identity the several units (especially infantry) of the Canadian Expeditionary Force, which served at the front, should be incorporated into the Canadian Militia ; this without avoidable increase of establishment, without prejudice to the divisional system of organization and with due regard to the services at various times, both before and during the war, the Militia itself has rendered." This committee is known as the " Otter Committee."

In due course a report was issued and in the main accepted. The present militia organization, with a few minor changes, is the outcome of that report. The perpetuation of the overseas units was provided for and the old Militia was saved. Militia Headquarters and the Military Districts remained the same as at the end of the war. The divisional system was maintained. The Permanent Force was reconstituted as shown in Appendix I. Its duties are mainly instructional, but it is entrusted with special duties of mobilization, while by law it is to be the first to be called out in aid of the Civil Power.

The Militia (see Appendix II) is divided into :—

- (1) The Active Militia, which is again sub-divided into : Active units ; Reserve units ; Depots ; Reserve of Officers.
- (2) The Reserve Militia consisting of all the male population of Canada between the ages of 18 and 60, physically fit and not legally exempt. It is unorganized at the present moment.

The basic law governing the constitution of the Militia is the Militia Act. It is a good Act giving the Government and the military authorities great powers.

The National Defence Act of 1922 has consolidated the three fighting services into one department under one minister, henceforward known as the Minister of National Defence.

Orders in Council of June, 1922, and January, 1923, have provided for the constitution of a Defence Council to advise the Minister on all matters of defence, including or relating to the Militia, the military, naval and air services of Canada, and on all matters referred to it by the Minister.

VII.—TRAINING.

The training of the Canadian Forces may be briefly summarized as follows. The Royal Canadian Navy and the Royal Canadian Air Force, being largely professional, are trained on identical lines to the Royal Navy and the Royal Air Force. In fact, Canadian naval officers and many seamen do most of their service with the Royal Navy. All Canadian air officers undergo flying courses in England: in addition they are admitted to the Air Staff College and can serve in England by exchange. All Permanent Force officers take the War Office qualifying examinations. Exchanges are arranged with Great Britain and selected officers take courses in England. Lastly, there is keen competition for three annual vacancies at the Camberley (2) and Quetta (1) Staff Colleges.

The position of the Militia is different. Funds voted by the Canadian Parliament do not permit of the training of the large regimental establishments provided before the war. Central camps have had to be eliminated or curtailed. Post-war training has thus been made to concentrate on officers, specialists and N.C.Os. With somewhat increased funds in 1928 and 1929, as well as by economies and re-arrangement effected by District Officers Commanding, more central camps have been held lately. The training generally is similar to the training of the British Territorial Army; but there are marked differences, the Canadian Militia having no "permanent staff" attached to units.

A most important course of instruction carried out in Canada is known as the "Militia Staff Course." Its policy is laid down by the Chief of General Staff; it is generally directed by a senior General Staff Officer employed at the Royal Military College for that purpose. It is conducted in detail by the District Officers Commanding and staffs of Military Districts. It consists of a theoretical and a practical portion; the former is conducted in the Military Districts and the latter in two central camps, one in Eastern and the other in Western Canada. Some 100 or more officers receive their training in staff duties at this course annually.

Officers and N.C.Os. of the Non-Permanent Active Militia qualify at either Royal or Provisional schools conducted by the Permanent Force.

A Canadian School of Small Arms is maintained at Ottawa on the lines of the Hythe institution.

VIII.—THE NAVAL SERVICE.

The Royal Canadian Navy was in difficulties at its very inception, since neither of the two great political parties could see eye to eye; nor apparently was there any compromise possible. Then the Canadian Ministers went to the Imperial Conference of 1909, which resulted in the gift to Canada of the "Niobe" and the "Rainbow" and the establishment of a naval college in Canada. All seemed fair when a change of government in 1911, and the impending trouble in Europe, caused Sir Robert Borden to ask for advice. It appeared to the Canadian administration that the best way to prepare for the naval emergency was a cash contribution to the Imperial Government. A vote for this passed the House of Commons but was negatived in the Senate largely on constitutional grounds. Then arose the war. Next came peace, with a desire of the Union Government for re-organization. The advent of the government of Mr. Mackenzie King with a mandate for economy, and an increasing desire of the thinking Canadian people to take on more of the naval responsibilities of the Empire bring the question to the present. There are now signs that, with the increase of prosperity, the Government is investigating the shape its naval policy should assume in the future.

IX.—THE AIR SERVICE.

At first it was contemplated to make the Canadian Air Force part of the Permanent Force of Canada, and two well organized Canadian squadrons were formed in England in 1919 to be brought back to Canada for incorporation into the reconstructed Permanent Force. This scheme came to nothing.

The Aeronautics Act of June, 1919, constituted a Board with representatives from the Departments of Militia, Naval Service, Post Office and Customs to undertake the preliminary work of organization of air services. When the preliminary work was completed this Board resigned, and a new Board known as the "Air Board," was authorized. This Board functioned until absorbed by the Department of National Defence in January, 1923. During this period the Royal Canadian Air Force had its birth and started on its duties and development. The organization was not working smoothly and so a new re-organization took place in July, 1927, when the air activities of Canada were divided into four branches:—

- (1) The Royal Canadian Air Force.
- (2) Directorate of Civil Government Air Operations.
- (3) Aeronautical Engineering Division.
- (4) Controller of Civil Aviation.

The first is entirely military and is administered as a directorate of the General Staff. The other three branches are administered by the Deputy Minister. The Civil Government Directorate does work for other Federal Government departments, such as surveying, forest protection, fishery protection, photography, etc. Its personnel is largely found from the R.C.A.F.

The Aeronautical Engineering Division carries out the aeronautical engineering for the other three branches.

The Controller of Civil Aviation deals with the administration of the Air Regulations and generally with aeronautical matters not dealt with by the other branches.

X.—CANADA'S STRATEGICAL PROBLEMS OF TO-DAY.

To the question : What strategical problems are the Canadian Forces designed to meet ?—the answer is the following :—

- (1) To take the first shock of battle in the defence of Canadian coasts and frontiers ; to protect our vitals until the Empire can come to our aid ;
- (2) To contribute to the expeditionary forces of the Empire in case His Majesty's Canadian Government decided to participate in an Imperial war ;
- (3) The maintenance of the Civil Power in Canada ;
- (4) It is presumed that, although Canada did not ratify Article 10 of the Covenant of the League of Nations, it could not hold aloof from a justifiable League war.

The situation is best summed up by reference to a few statements made by eminent men.

In the "United Service Magazine," October, 1905, Sir Frederick Borden stated :—

"The best way to serve the common interest of the defence of the Empire would seem to be to make each part of it self-reliant and strong enough to defend itself against any ordinary attack. At any rate, to be sufficiently strong to take the initiative in repelling such attack. To do this it would seem to be desirable that everything required to place an army on a war footing in the field should be procurable within the country itself. The departments necessary to equip and maintain any army in the field have been organized in Canada, and officers and men are being instructed and trained on the principle, now generally adopted, that organization in peace should be as nearly as possible the same as that which would be required in war."

In 1905 a paper, drawn up by the Militia Council, was laid before Parliament as Sessional Paper No. 130. This summarized the duties

of the Canadian Militia as: "first, the support of the Civil Power; secondly, the defence of the country from aggression by any foreign power. To these a third has recently been added, that of relieving the Imperial Government of the responsibility for the safety and maintenance of the two Imperial naval bases, Halifax and Esquimalt, which stand upon Canadian soil."

Sir John French, in his report of 1910 to Sir Frederick Borden, stated: "From instructions conveyed to me I have conceived that it is your desire that I should report to you fully upon the state and condition of the Canadian Militia with respect to its readiness either to maintain internal order within the country, to protect its frontiers against attack, or to furnish contingents to succour other parts of the Empire in the event of the Dominion Government seeing fit to follow on the precedent set by them in the late war in South Africa. Of these, the most important and necessary rôle which the militia have to fulfil is to defend Canada against attack by land. A force which is in a sufficiently satisfactory condition of organization, training and efficiency as to render the frontier reasonably secure, will also be in the best position either to furnish Imperial contingents or to keep internal order."

In 1913, General Sir Ian Hamilton in his report to Colonel Sam Hughes, said: "The primary duty of every self-governing portion of Greater Britain is to make all reasonable provision, up to the limit of its resources, for defence against invasion of its own territories. . . In short, naval considerations apart, a sound system of Imperial defence must rest, in its widest aspects, on the ability of each self-governing Dominion to offer a vigorous resistance to any attempts made against the integrity of its own home territories. . . I take it as an axiom, then, that every State in the Empire is bound in honour, after looking to its own immediate safety, to consider how it may best take its share in the general burden of responsibility."

The Canadian service personnel and the thinking public generally agree that Canada maintains its Defence Forces for the reasons enumerated in the beginning of this paragraph.

The year 1929 finds the Canadian Militia generally efficient, well organized and well officered, strongly Canadian in its make-up, but deeply Imperialist in its outlook, hoping for continued peace to favour the development of Canada and the Empire, yet ever ready to respond to the call if a great emergency should overtake us again. A formidable force could be put into the field in a very short time which would prove a match for the best of professional troops in any attempted invasion of Canadian territory. The officers of the Canadian Militia, are, generally speaking, outstanding professional men, business men and farmers who

give a great deal of time and money to militia affairs. The idea that permeates the minds of the Canadian Militia is that "it is better to be despised for too anxious apprehensions than ruined by too confident security."

The Royal Canadian Navy, small though it is, is efficient and ready for expansion.

The Royal Canadian Air Force may now be reckoned as one of the great air forces of the world.

APPENDIX I.

The Permanent Force of Canada consists of :—

- 2 Regiments of cavalry (R.C. Dragoons and R.C. L.S.H.).
- 3 Batteries of horse artillery (R.C.H.A.).
- 5 Medium and heavy batteries (R.C.A.).
- 13 Detachments of engineers (R.C.E.).
 - Corps of Signals (R.C.C.S.).
- 3 Regiments of infantry—each of 1 Battalion (R.C.R., P.P.C.L.I. and R. 22nd Regt.).
- 4 Depots and 8 detachments of Army Service Corps (R.C.A.S.C.).
- 12 Detachments of R.C.A.M.C.
- 12 Detachments of R.C.O.C.
- 5 Detachments of R.C.A.V.C.
- 12 Detachments of R.C.A.P.C.
 - Corps of Military Staff Clerks.
 - Small Arms School ("A," "B" and "C" Wings).

APPENDIX II.

The Canadian Militia consists of :—

Cavalry.

- 33 Regiments of cavalry and mounted rifles and 33 reserve regiments.

Artillery.

- 94 Field, 20 medium and 12 heavy batteries with 22 reserve brigades.

Engineers.

- 11 H.Q.'s. divisional engineers.
- 14 Field companies and 10 reserve field companies.
- 7 Field troops and 4 reserve field troops.
- 2 Fortress companies.
- 1 Reserve topographical section.

Canadian Corps of Signals.

- 11 Divisional Signals.
- 2 Fortress signal companies.

Canadian Officers' Training Corps.

At the Canadian Universities.

Infantry and Rifles.

- 122 Regiments each with 1 active battalion, except The Q.O.R. and The R.H. of C., which have 2 active battalions; total 124 battalions.
- 166 Reserve battalions.
- 25 Reserve regimental depots authorized to date.

Canadian Machine Gun Corps.

- 2 Motor machine gun brigades and 2 reserve brigades.
- 1 Cavalry machine gun squadron and reserve squadron.
- 12 Machine gun battalions and 10 reserve machine gun battalions.

Canadian Army Service Corps.

- 12 Divisional trains.
- 9 Reserve divisional trains.
- 2 Reserve depots.

Canadian Army Medical Corps.

- 5 General hospitals.
- 2 Reserve general hospitals.
- 7 Casualty clearing stations.
- 27 Field ambulances.
- 12 Reserve field ambulances.
- 7 Cavalry field ambulances.
- 2 Reserve cavalry field ambulances.
- 11 Field hygiene sections.
- 3 Reserve motor ambulance convoys.
- Reserve mobile laboratory.
- Reserve X-ray unit.
- Reserve base depot medical stores.
- Reserve advanced depot medical stores.
- 12 Reserve depots.

Canadian Dental Corps.

- 11 Detachments.

Canadian Ordnance Corps.

- 11 Detachments.

Canadian Army Veterinary Corps.

- 7 Mobile veterinary sections.
- 2 Cavalry mobile veterinary sections.
- 1 Reserve depot.

Canadian Postal Corps.

- 12 Detachments.

Cadet Services of Canada.

- General List of officers.

Canadian Chaplain Service.

- General List of officers.
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AUSTRALIA'S PART IN NAVAL DEFENCE

BY CAPTAIN H. J. FEAKES, R.A.N.

On Wednesday, 30th October, 1929, at 3 p.m.

MAJOR-GENERAL THE HON. SIR GRANVILLE RYRIE, K.C.M.G., C.B.,
V.D., in the Chair.

THE CHAIRMAN, in introducing the lecturer, said the subject of the lecture was one of great Empire importance, and one upon which Captain Feakes should be well qualified to speak by reason of his long and varied experience in the development of the Royal Australian Navy.

Previous to joining this Staff as the Australian Naval Representative, Captain Feakes was Captain Superintendent of Naval Training in Australia. He had also commanded several vessels of the Royal Australian Navy and served as Flag-Captain to two distinguished Flag Officers commanding His Majesty's Australian Fleet.

LECTURE

THE subject of "Australia's Part in Naval Defence" seems to me to be of great importance at the present time. It is true that consideration of navies just now is largely in terms of reduction; indeed, to such an extent is this so that we are apt to forget that our other naval problems still remain, prominent among them being that of Dominion co-operation.

To begin with, there is the elementary fact that, for just so long as large sections of the Empire's populations are dependent on other sections overseas for their daily food supply, the necessity for the maintenance of Empire sea police forces will continue. Again, with the growth of the Dominion populations into their now recognized nationhood and status within the Empire, varying phases of the problem, also of its solution, will undoubtedly be presented. A study of Australia's part in naval defence in the past will materially assist in making clear the direction our efforts should take to ensure maximum Dominion participation in carrying the common burden in the future.

Although I happen to be the Australian Naval Representative in London, I want to emphasize that no official significance attaches to any opinions that I may express here, and I trust that anything I say may be regarded as the personal view of one who has been privileged to play a small part in Dominion naval defence.

EARLY DEVELOPMENTS.

A live appreciation by Australia of the necessity to provide for the defence of her own local sea interests is apparent from the earliest days of the country's settlement. It was soon recognised that strategical considerations must compel the Mother Country to concentrate practically all available naval forces in seas remote from the isolated colony struggling into existence at the Antipodes.

The colonization of Australia, it will be recalled, took place in an atmosphere dark with suspicion of, and rivalry with, the French. It was a generation when Britain and France were struggling for the mastery of the sea. The battles of the Glorious First of June, the Nile and Trafalgar had yet to be fought, and all available vessels were therefore concentrated in the Atlantic or Mediterranean. The final overthrow of Napoleon was still distant, and his schemes for the conquest of India and of other parts of the world were in being.

Even in Australia itself there were serious indications of French hostility. The discoveries of Cook in the Pacific had aroused great interest in France and, in 1785, Louis XVI had despatched that great French seaman, La Perouse, on an expedition to the Pacific to see where France could share in the benefits of Cook's discoveries. Hearing of the proposed British colonization scheme, La Perouse came South from Kamschatka in 1788, and by a marvellous coincidence arrived off Botany Bay as Captain Philip was working out to proceed to the newly discovered harbour of Port Jackson. It was a dramatic meeting. La Perouse, we are told, was observed navigating his ship with a copy of Cook's chart of Botany Bay spread before him on the binnacle.

Strong suspicion that the almost immediate disappearance of La Perouse and his ships was to be ascribed to British action clouded the relations of the representatives of the two nations until, a quarter of a century later, the finding of La Perouse's sword in the possession of a native Chief in the Santa Cruz Group established the facts of his mysterious disappearance. France continued her search for La Perouse and voyages of exploration well into the XVIII century, and the presence of various French vessels in Australian and New Guinea waters occasioned considerable uneasiness among the early colonists.

The first four Governors of Australia were Captains of the Royal Navy; there was also a strong leavening of seamen among the early settlers. It is not surprising therefore to find in the earliest records of the infant colony reference to His Majesty's¹ Colonial Ship "Sally." In 1801 we read of His Majesty's Colonial Ship "Cumberland" being occupied in police and patrol duties.

¹ His Majesty of that day was King George III.

The roots of naval effort had struck deep in the hearts of those early settlers away back in the XVIIIth century. But the banishment of Napoleon to St. Helena was followed by a generation of peace in Europe, and it is not until the year 1853 that we find those in authority in the established Australian Colonies anxious for their safety.

A NAVY IN EMBRYO.

The Crimean War was in progress and operations were threatening in the North Pacific. Hostile action by Russian raiding cruisers in Australian waters was feared, and a large fleet of sailing vessels bound for Europe with valuable cargoes was being detained at anchor in Hobson's Bay for want of a naval escort. Conscious of the inability of the Admiralty at this time to ensure safe passage through the Bass Strait to the open ocean, the Governor, His Excellency Sir Charles Hotham, with great initiative and enterprise acquired a vessel of about 580 tons, just completed on the Thames, manned and commissioned her as Her Majesty's Victorian sloop of war "Victoria." This vessel proved to be the first of an unbroken succession of ships of war under Australian Government control, which has developed into H.M.A. Fleet of to-day.

Though never called upon to protect Australian shipping from hostile action, H.M.V.S. "Victoria" was employed in the New Zealand war of the period, thereby initiating the association of an Australian naval unit with Imperial naval and military forces. This association was continued in the Sudan and South African campaigns, and later, in the Boxer troubles in China; it culminated in the recent Great War.

It is evident that the Admiralty did not fail to note this effort of a Colonial Government to become responsible for its own local defence, and also viewed such enterprise with favour, for we find that, in 1867, when replacement of this pioneer vessel had become necessary, their Lordships made over to the State of Victoria the fine old line-of-battle ship "Nelson"—the first of her name—launched at Woolwich in 1814, and now commissioned for the first time, for use as a training ship.

The gift of the "Nelson" must be regarded as an historic event, the forerunner of many an occasion when the Admiralty have come forward to help the young Navy in its development. The presentation of the ironclad monitor, "Cerberus," followed in 1869, a condition of this gift being that she should be kept in commission by the State. It was entirely due to this fact that the naval forces survived the fluctuating fortunes of the State through long eras of peace.

No record of early naval development in Australia would be complete without reference to the Right Honourable Hugh C. E. Childers, M.P.,

for it is to him, as Financial Secretary to the Treasury, and later as First Lord of the Admiralty, that the practical interest which included the presentation of ships must largely be ascribed.

Colonial defence problems were, at that time, greatly to the fore in a political sense, doubtless largely because of Childers' intimate knowledge and interest in the subject. It was he who recognised that fundamental principle,—later whole-heartedly adopted by Tryon, and in our day by Creswell,—that Colonial Defence was a problem requiring something more than the mere allocation of money, and that provision of men and a development of strong local interest were imperative.

In the 'eighties, further Russian war scares produced naval activity in each of the self-governing States, Victoria, Queensland, South Australia and New South Wales. To the "Nelson" and "Cerberus," already in commission, the Colony of Victoria added two gunboats of 360 tons, the "Victoria" and the "Albert," a 120-foot torpedoboat, the "Childers," and two 60-foot torpedo launches, the "Nepean" and "Lonsdale," followed in 1891 by the first class torpedoboat, "Countess of Hopetown." A Naval Reserve, recruited chiefly from local seamen, was organised, the warships being augmented at periodical exercises by local craft in which guns were mounted, the whole forming quite a "formidable flotilla," to quote Brassey's Annual, 1887.

The State of Queensland built two gun boats of 360 tons, the "Paluma" and "Gayundah," also two torpedo craft. The "Paluma" had a record of utility in H.M. Service in the Survey of Australian Waters, 1884-1895. She further distinguished herself when, in a period of flood of the Brisbane River, she broke from her moorings and was left, when the waters receded, stranded high and dry in the middle of the Botanical Gardens. The contractor who had undertaken to dig a channel and return her to her berth had not commenced operations before a second flood refloats the "Paluma" and she was towed back to her billet.

About this time, 1885, the State of South Australia, under the Governorship of His Excellency Sir John Jervois, ordered a vessel of 960 tons specially designed for the defence of St. Vincent and Spencer Gulfs. This vessel, the "Protector," was a remarkable ship at that period. Mounting one 8-inch and five 6-inch B.L. guns, fitted with twin screws and engines giving a speed of 14 knots, she provided a contrast to the flagship of the British Squadron—the ironclad "Nelson," second of the name, a vessel of obsolescent design mounting M.L. guns.

Sydney being the base of visiting British squadrons, a feeling of security, unknown in the other Colonies, was experienced in the Colony of New South Wales. Solely on this account local naval effort was restricted to the organization of a Naval Volunteer Brigade and a division

of Naval Volunteer Artillery. To provide training afloat an obsolete warship, H.M.S. "Wolverine," was acquired. These State forces were entirely subject to their respective State Governments in matters of control, finance and maintenance.

In 1884, however, the Admiralty had clearly become much impressed by the naval activities of Australia. The status of that Station was raised to a Flag Officer's Command, and, more significant still, one of the greatest naval personalities of the day, Rear-Admiral Sir George Tryon, was selected as Commander-in-Chief. Admiral Tryon was not only blessed with a robust temperament and a cheery nature, but he possessed that true spirit of leadership which produces real team-work. His appointment was an ideal one. To his great influence must be attributed the shaping of naval consciousness, both in Australia and New Zealand, and the building and commissioning of the auxiliary squadron of cruisers in the 'nineties.

He left a great feeling of enthusiasm for the navy; in fact this period marks the zenith in the careers of the infant State navies. But their day was passing. A strong feeling was growing that the defence Services of the country required considerable development and expansion before Australia could be said to be pulling her weight in Empire defence.

THE FEDERATION OF THE STATES.

Up to this time no arrangements existed for replacements as ships became obsolete. This resulted in a general decline in naval strength; it was fortunate that the South African and China expeditions came to maintain the spirit of the personnel.

In 1900 the various States federated into the Commonwealth of Australia, and the sectional naval units were merged into the Commonwealth Naval Forces under an officer styled the Naval Director who was responsible to the Cabinet through a Minister for Defence. The individual selected for this appointment was Captain (now Vice-Admiral Sir William) Creswell, an officer of wide Empire vision and strong personality.

Captain Creswell set about organizing the unified Australian naval force. Through successive changes of Ministers—no less than eight held office as Minister for Defence in as many years—he expounded his views of development, meeting with much opposition both at home and abroad. A construction programme of destroyers was recommended. Opponents in Australia strongly opposed the proposal, and particularly

the selection of destroyers of the "River" Class. A distinguished critic declaimed: "What do we want with vessels designed for service in rivers? If we must have ships of war they should be capable of service in the Seven Seas of the world!" This passed for effective criticism until the question was asked: "Does the honourable gentleman consider that vessels of the "Lion" Class are designed to operate only in the jungle"?

Fortunately Captain Creswell's views prevailed, and in due course three destroyers of the improved "River" Class, the "Parramatta," "Yarra" and "Warrego" were ordered from Clyde shipbuilders. The first two ships arrived at Melbourne in October, 1910. The third vessel was sent out in sections to Australia, and assembled in the shipyards at Cockatoo Island, Sydney, in order to give experience to local shipbuilders. At a later date, three similar vessels and two "Town Class" cruisers were built at the same yard.

It is of interest and importance to note that at this time naval development had the support of an overwhelming majority of both political parties in the country, and at the elections a forward naval policy had first place in the programmes advocated by both the Government and the Opposition. Moreover, it proved to be no mere window dressing. Mr. Deakin's Coalition Government, going into recess in 1908, earmarked £250,000, promising it should not be spent until Parliament had opportunity further to consider the form which naval development should take. After the Deakin Government, the new Labour Ministry found an opportunity immediately to redeem at least one of its election pledges. Funds provided by their predecessors were available, and, although not bound by any promise such as Mr. Deakin was, the Labour Government immediately adopted their Naval Adviser's proposals, and the first destroyer units were promptly ordered.

The Defence portfolio in the new Government was held by Senator G. F. Pearce, now Sir George Pearce. Firm of purpose and clear of vision, this statesman took the naval defence of the country out of the welter of discussion in which it had wallowed for years. A real advance was made from the moment he took office. Fortunately he remained in Ministerial charge not only during this period of development, but also throughout the war.

Although the naval forces of Australia were now in being and the long hoped for era of expansion had commenced, development was not sufficiently fast to meet what were felt to be the naval needs of the Commonwealth. Events were moving with great rapidity in Europe. The growing naval power of Germany demanded a concentration of British naval forces in the North Sea, necessitating the withdrawal of

nearly all H.M. ships of fighting value from the outer seas. This left a feeling of insecurity in Australia. War scares were frequent, and the danger seemed to call for exceptional measures.

THE ROYAL AUSTRALIAN NAVY.

Since 1861, periodical conferences to consider and advise on Colonial Defence questions had met in London, but the results were usually of little practical value. True, the Imperial Conference of 1907 had recommended a construction programme of small destroyers and submarines as being most suitable for Australia's needs, but this was obviously inadequate to meet attacks by hostile raiding cruisers such as Australia had been counselled to be prepared to meet in the event of war. As a matter of fact, the destroyer construction programme, recommended by the Commonwealth Naval Mission, was embarked upon without reference to the Imperial Authorities.

Now that this new menace had arisen, however, it was felt that some greater effort was called for. In 1909, therefore, the British Admiralty was requested by the Australian Government to send out a Naval Mission to advise on Australia's naval problems.

Assisted by the Naval Director of the C.N.F., Captain W. R. Creswell, with Staff Paymaster A. M. Treacy, C.N.F., in charge of the Secretariat, the Mission toured the coasts of Australia and examined the problem at first hand. Their recommendations were of a far-reaching character. As a first instalment of an ambitious programme they recommended the immediate construction of a battle-cruiser, and a certain number of "Town Class" cruisers, destroyers and submarines. Naval bases, shore training establishments, and naval auxiliary and administrative services were provided for. Recruiting and training of a personnel, expanded to meet the new requirements, were also proceeded with.

The resources of the Commonwealth Forces were, however, quite inadequate to provide the instructional staffs requisite to meet this sudden expansion in personnel. But again the Admiralty came to the rescue, and in spite of the pressing needs of the Royal Navy, officers and instructors of all branches were seconded for service in Australia.

It cannot be too strongly emphasized that without this Admiralty assistance the Naval Forces of Australia could not have developed as they did. But, by 1911, they had attained a size and standard which rendered them a factor of considerable significance in the defences of the Empire. This was graciously recognised by His Majesty the King conferring upon them the dignity and title of "Royal Australian Navy."

The officer so intimately responsible for this development, Captain Creswell, was created a K.C.M.G., promoted to Rear-Admiral and

appointed as First Naval Member of the newly constituted Australian Naval Board, a position he held until his retirement seven years later.

The first vessel of the new programme, the cruiser "Melbourne," commanded by Captain M. L'E. Silver, R.N., arrived in Australia in February, 1913. She was followed in October by the battle cruiser "Australia," Captain S. R. Redcliff, R.N., and the cruiser "Sydney," Captain J. C. T. Glossop, R.N. The "Australia" flew the flag of Vice-Admiral Sir George Patey. Admiral Patey had been exceptionally honoured in having been knighted by His Majesty the King on the quarter deck of his own flagship, an incident without precedent since Queen Elizabeth knighted Drake on the deck of the "Golden Hind."

The Squadron assembled at Jervis Bay, and a grand entry into Sydney was made on 4th October, 1913. The arrival of these fine ships in Australian waters was an occasion for much national rejoicing and they brought with them a sense of security and relief, since it was felt that the hour of trial was ever coming nearer.

The Squadron at once embarked on a programme of training and exercises, and by 1914 it could be said that the Royal Australian Navy was truly a fleet-in-being; the ships had found themselves. It was none too soon. In that same year came war, no Russian bogey, but the real thing, and on a scale which might alter Australia's whole destiny.

Our immediate concern was, naturally, the German Pacific Squadron. It will be recalled that the principal units of this force were the armoured cruisers "Scharnhorst" and "Gneisenau," with the fast light cruisers "Emden," "Nürnberg" and "Leipzig." The Commander-in-Chief, Admiral von Spee, flew his flag in the "Scharnhorst." All were modern vessels and the two armoured cruisers held the blue riband of German naval gunnery. It was indeed a matter for congratulation that the Dominion was so well prepared in the face of such a formidable enemy.

THE GREAT WAR.

Australia's naval effort in the Great War, apart from the epic encounter which resulted in the destruction of the "Emden" by the "Sydney," is little known, even by her own people. Doubtless the magnificent achievements of her military forces have somewhat overshadowed the less dramatic achievements of the Navy.

At the outbreak of the war, it must be remembered, Japan was a neutral. Of the belligerent fleets, the Australian Navy was the most powerful East of Suez. It was not unnatural, therefore, that decisive action was expected of it at the outset. Certainly no time was lost. Admiral Patey in the "Australia" left Sydney on the evening of the 4th August. Effecting a rendezvous with his cruiser squadron and

destroyer flotilla South of New Guinea, he made for Rabaul Harbour, where he expected to find the enemy in force.

Arrived off there on the 11th August, the "Sydney" and three destroyers were sent in under cover of darkness to reconnoitre. But the eagerly awaited contest was not to be: the harbour was empty.

It was soon seen that it was no part of the German Admiral's war plan to match his forces against the new Australian Squadron, so instead of a dramatic action that would have thrilled the world, the Australian ships found themselves for many weary months engaged in searching the innumerable islands of the Pacific Groups, in escorting transports with the New Zealand military forces sent to occupy Samoa, and other relatively uninspiring duties.

But let it not be forgotten that it was chiefly the Australian Navy which ensured that immunity from attack and freedom of commercial intercourse which would not otherwise have been enjoyed by British trade and British nationals in the Pacific and Eastern Seas.

With the departure of Admiral von Spee and his squadron and their destruction off the Falklands after the disaster of Coronel, only the "Emden" remained in the Eastern Seas. With extraordinary skill, she eluded over thirty allied men-of-war in their endeavours to hunt her down while she wrought havoc with shipping. At last, on 9th November, 1914, she was brought to action off Cocos Island by the "Sydney." Her end marked the completion of the work of the Australian Navy in the Far East. But this only meant that its units were available for service in other theatres of war. From then to the end of hostilities, ships of war, commissioned by the Australian Government, manned by Australian personnel and maintained at the charge of Australia, were to be found with the forces of the Empire in the North Sea, Atlantic, Mediterranean, Indian and Pacific Oceans.

If Australia's naval war losses were comparatively small it was not due to the absence of her ships from probable theatres of conflict. The battle cruiser "Australia" was attached to the Battle-Cruiser Fleet in the North Sea from January, 1915, until the surrender of the German Fleet at Scapa Flow, in which she took part flying the flag of Rear-Admiral Sir Lionel Halsey. Four Admirals who commanded the 2nd Battle Cruiser Squadron successively flew their flags in her. She only just missed Jutland, as she was at the time *en route* to rejoin her Squadron at Rosyth after refitting at Devonport.

The "Melbourne" and "Sydney" were on patrol duty in the Atlantic until, in 1916, they joined the Second Light Cruiser Squadron attached to the Grand Fleet. The "Pioneer" was employed off the African

coast. The "Psyche," which I had the honour to command, flew the pennant of the Senior Officer of an organization composed of armed merchant steamers, tugs, and vessels of the Irrawaddy flotilla, manned by the Royal Indian Marine; two double companies of British Territorials were also embarked. This force was known as the Burma Coast Patrol.

The destroyer flotilla was employed successively in the waters of New Guinea, the Eastern Archipelago, Indian Ocean, Mediterranean and China Seas. It was during this service in the Adriatic that the "Parramatta" destroyed an enemy submarine.

Both Australia's submarines were lost. One, "A.E.1," commanded by Lieutenant-Commander T. F. Besant, R.N., was sunk with all hands in New Guinea waters, in September, 1914. The following year, the other, "A.E.11," Commander H. G. Stoker, D.S.O., R.N., was the first vessel to evade the minefields and to make the passage of the Dardanelles into the Sea of Marmora. She was driven ashore, her crew falling prisoners to the Turks.

This is but a brief review of the services of Australia's Navy in the Great War, and it is a record of which she may well be proud.

With the surrender of the High Seas Fleet the Australian ships were free to depart to their home waters. Of all the vessels commissioned by Australia in the war, the two submarines alone failed to return, an achievement which must reflect great credit on the personnel in general, and the navigating and engineering sections in particular.

POST WAR POLICY.

Australia shared in the general reaction against armaments which quickly followed the successful conclusion of the war. A complete revision of policy was inevitable. Under the Washington Treaty the battle-cruiser "Australia" became part of the excess of the tonnage allotted to the British Empire in capital ships. The affection of the people of the Commonwealth for the old flagship, when it became known that she was to be sunk, under the terms of this Treaty, was a great surprise even to those most intimately connected with the Australian Navy. It was evidence that the public still had a deep-rooted interest in the fleet. With feelings of real and general regret, the "Australia" was sent to her burial ground outside Sydney Heads.

Except the "Adelaide," a cruiser built at Cockatoo Dockyard, in 1921, the other pre-war ships were out of date. But the Commonwealth had had its lesson, and still appreciated the necessity for maintaining an efficient and modern naval force. So, in 1925, the Government

embarked on a new programme of building, involving an expenditure of £7,000,000

The main items of this programme have now been completed, and the following units are in full commission :—

10,000-ton Cruisers	..	"Australia" and "Canberra,"
Aircraft Carrier	..	"Albatross."
"O" Class Submarines	..	"Otway" and "Oxley."
Flotilla Leader	..	"Anzac."
"S" Class Destroyers	..	"Swordsman" and "Success."
Seagoing Repair Ship	..	"Platypus."
Surveying Vessel	..	"Moresby."

In addition there are in reserve :—2 Cruisers ; 9 Destroyers ; 3 Sloops ; 2 Oilers ; and various auxiliary craft.

PERSONNEL.

So far we have dealt mostly with the material side. I would now like to say a word or two regarding the personnel of Australia's Navy and the steps taken and being taken to provide and train them.

The total personnel of the permanent naval forces for the financial year ended 30th June, 1929, was 5,114, and the Naval Vote was approximately £2,700,000.

TRAINING.

Those responsible for the development of the Royal Australian Navy have always been deeply imbued with the necessity for ensuring that its personnel should have a definite, strong, Australian identity. Any boy or youth resident in Australia of British birth and European origin is eligible to be recruited, but in view of the early age at which entry into the naval Service is necessary it is felt that the first years of training must be spent in Australia. By no other means can the desired development of Australian characteristics and sentiments be ensured. Therefore, in spite of the expense, establishments for training both officers and men have been instituted.

In 1913, and pending the completion, in 1915, of the Naval College on the shores of Jervis Bay, N.S.W., temporary accommodation was provided for cadets at Geelong, Victoria. The first entry numbered about forty, and it was the original intention to enter a similar number annually. But various circumstances have prevented this being adhered to, and the present entry is about fifteen per annum.

In December, 1917, after four years' training, the first entry passed out and were appointed as Midshipmen to various ships of the Royal Navy and to the "Australia." Training at the College, and subsequently

as Midshipmen, follows in all respects that of their contemporaries in the Royal Navy, while all courses for Sub-lieutenant and later specialist courses are carried out in H.M. ships and establishments of the Royal Navy.

About 170 graduates of the College are now serving, the senior being Lieutenant-Commanders of two years seniority. Officers have specialised in all the various branches: gunnery, torpedo, signals, W/T, etc. They have already given evidence of their quality and of the excellence of their training, in proof of which it may be noted that in practically every branch R.A.N. Officers have at one time or another had the distinction of obtaining the place of honour at the top of the course. The full effect of these successes will be felt when, in the years to come, the reigning First Sea Lord at the Admiralty will recognise in the First Naval Member of Australia one who topped his Long Course many years before.

The difficulty of maintaining in a high state of efficiency the officers of a small and very isolated squadron has been recognised, and to ensure that they keep in touch with the latest developments the Admiralty are co-operating with the Commonwealth Naval Board in arranging for an interchange of officers between the R.N. and the R.A.N. This system has been working most satisfactorily for some years, and has been extended to the Engineering, Accountant and Medical branches. In addition, from time to time, cruisers are exchanged for a period of six months or more.

Due regard has also been paid to the entry and training of Lower Deck ratings. The first step was the provision of a Boys' Training establishment, and the celebrated clipper sailing ship, "Sobrian," was taken over for this purpose. The young Australian proved fine material, and some 3,000 have been entered and moulded into seamen. It is to be regretted that reasons of economy have necessitated the temporary cessation of boys' entry, but there is every hope that better times will see the re-introduction of this valuable system.

The Henderson recommendation for a Naval Training Establishment at Flinders was adopted; barracks, schools and other necessary accommodation were erected, and the Naval Depot at Williamstown transferred to its new quarters in 1920. Flinders Naval Depot is, undoubtedly, the finest establishment of its kind in the Southern Hemisphere. It is a miniature Portsmouth, and provides for instruction in gunnery, torpedo, engineering and cookery, in fact all the branches of a modern navy.

New entries, of whom there is no dearth, first pass through a period of intensive training here, before being drafted to sea. Like the Naval College at Jervis Bay it is a self-contained community, situated several miles from the nearest town and about fifty miles from the nearest city.

Its commodious and comfortable living quarters, adequate recreation grounds and convenient sea bathing facilities compensate for the absence of those outside amenities which may be popular, but which are, not infrequently, detrimental to training.

NAVAL RESERVES.

On the withdrawal of British Regiments from Australia, the various State Governments organized their own local defence forces. These included both naval and military citizens' sections.

Until the federation of the Australian colonies in 1900, these citizen forces were of an entirely voluntary character. But by the Defence Acts of 1903 and 1904, all male inhabitants between the ages of 18 and 60 years were made liable to serve *in time of war*. In 1909 a measure providing for universal training was enacted; this came into force in 1911. Thus for the first time in any English speaking community the principle of universal liability to training was made law. More recent Acts make training and service compulsory up to the age of 26 years *in time of peace*.¹

Provision has been made that a proportion of the male population shall be allocated for naval training. Selection for this is practically limited to coastal districts, and preference is given to those whose civil occupation or interests are connected with the sea, e.g., crews of coastal vessels or yachts, fishermen, and the like.

Training centres with drill halls and facilities for boat work have been established in various parts of all States, and officers and ratings from the permanent naval forces act as instructors.

The extent of the training is necessarily limited, but further opportunities for instruction are afforded during visits of H.M.A. ships to the various ports. It is also arranged that men under training are embarked in sea-going ships for periods up to twenty-five days annually.

Those who undergo this training are known as the Royal Australian Naval Reserve (Citizen Naval Forces). The principal duties of this force, in time of war, other than their first function as a Reserve for the Australian fleet, are local defence, mine clearance, coast watching, and so forth. At the present time, the number of these reservists available for service in emergency is approximately 10,000, and many of them have had war service.

The full value of this universal training was not felt at the outbreak of the late war as it had not been in force long enough, but before the end many of H.M.A. ships had drawn a considerable proportion of their complements from this source, with very satisfactory results.

¹ Since this was written Compulsory Service has been abandoned: see General Service Notes p. 188.

In addition to this Reserve, there are also a Royal Australian Naval Reserve, a Royal Australian Fleet Reserve, and a Royal Australian Naval Volunteer Reserve, all similar in character to the Reserves of the Royal Navy.

HYDROGRAPHIC BRANCH.

A branch of the naval Service not much in the public eye, but one whose work is never-ending and whose value is incalculable, is the Hydrographic Branch.

Until recent years the marine survey of the Australian coast and adjacent waters was undertaken by the Admiralty, but it has now been taken over by the Royal Australian Navy.

DOCKYARDS AND BASES.

It will have been noted that the Commonwealth dockyard at Cockatoo Island, Sydney, is fully capable of building ships of war. The cruisers "Brisbane" and "Adelaide," a number of destroyers, and more recently, the aircraft-carrier "Albatross," have been constructed there.

A well-equipped Repair Yard is operating at Garden Island, Sydney.

The necessity for the establishment of fleet bases, coal and oil fuel storage facilities, etc., has not been lost sight of. Armament stores, victualling yards and all other requisites of the naval Service have been established and are being maintained.

THE NAVY LEAGUE.

Branches of the Navy League have been established in Australia, and the public interest in the Royal Australian Navy and naval defence generally has been greatly fostered by this patriotic body.

SUMMARY.

The outstanding feature of this general review of naval effort over a period of eighty years, is the steadfast determination of the people of Australia to develop a naval force definitely Australian both in its administration and personnel. In our view, even though there may be no immediate strategic objective, the Dominions should maintain the essentials of such naval forces as will be capable of expansion to meet the requirements of their anticipated future populations.

Each force should be closely identified with its Dominion, but it should be so constituted and trained that it is capable of taking a definite and distinctive part in the scheme of Empire Defence generally.

In the past, many people found difficulty in visualizing a British naval force which was not actually part of the Royal Navy. This was

understandable when we consider that for generations all the British population that mattered lived in these islands. But to-day the situation is very different. Already for every two Britons living in the United Kingdom there is one living in the outer Dominions, and we must be prepared for a generation when these figures will be reversed.

But just as each Regiment of the Guards has its own record and its own traditions, yet all share the prestige of the Brigade, so should the Dominion navies develop their own characteristics, and yet retain their sense of being part of the Empire's naval defences. Furthermore, there should be pride of unit in those serving, and pride of possession in those who finance the Service. Without such inspiration there can be no full measure of success in the sharing of the naval needs of the Empire.

DISCUSSION.

THE SINGAPORE BASE.

ADMIRAL SIR R. G. O. TUPPER: I want to ask Captain Feakes if he can tell us what the attitude of Australia is towards the Singapore Base. It seems to me that that base has a vital bearing on the naval defence of Australia.

CAPTAIN FEAKES: I am unable to discuss policy or strategy, but speaking quite unofficially, my personal opinion is that the people of Australia regard the Singapore Base as the most important part of the general plan for Empire defence in the Pacific, and expect it to be completed. I think they endeavour to visualize the defence of the Pacific as a whole, with the Singapore Base as the key, without which the value of the other defence units in the Pacific would be greatly reduced.

I gather that in mentioning this subject you have in mind that, from other sources, there have been direct contributions to the cost of the base. Australia, however, has made her contribution to the general defence plan for the Pacific by expending about £8,000,000 in the last four or five years on a new construction programme of 10,000 ton cruisers, submarines, etc.

I think that the people of Australia might feel that if the Singapore Base were not completed their efforts have been misdirected in as much as without it this expenditure might have been differently directed.

ADMIRAL TUPPER: In other words, failure to complete the base would be inimical to the defence of the Empire?

CAPTAIN FEAKES: Yes.

The usual votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE NEW ZEALAND DIVISION OF THE ROYAL NAVY

BY LIEUTENANT-COMMANDER E. H. LONGSDON, R.N.

THE Naval History of New Zealand dates from Queen Victoria's Jubilee of 1887. With the quickened sense of imperial unity appropriate to the occasion, the young Colony for the first time recognised the necessity for undertaking at least part of the responsibility for her naval defence. Provision was then made for the payment of an annual subsidy of £20,000 to the Imperial Government towards the cost of a British Naval Force to be employed for the protection of trade in New Zealand waters. In 1903 this subsidy was increased to £40,000 per annum and in 1909 it was again increased to £100,000 per annum.

In 1909 the New Zealand Government presented the battle cruiser H.M.S. "New Zealand" to the Imperial Government, as a free gift, at a cost of £3,000,000. This ship carried out a cruise round the Dominion in 1912, and was warmly welcomed in every port. She was the recipient of a large number of silver trophies and pieces of plate, some of which are still carried in the flagship of the New Zealand Division. During the war the "New Zealand" was employed with the Battle Cruiser Fleet in the North Sea. She was the only battle cruiser to be undamaged during the Battle of Jutland and to suffer no casualties. After the war she carried out another cruise round the Dominion and was finally broken up at Rosyth in 1923. Incidentally, it must be noted that she was never directly associated with the New Zealand Division.

In 1913 the first steps were taken towards the formation of the New Zealand Division by the passing of the Naval Defence Act which provided for the establishment of a New Zealand Naval Force. This force was inaugurated in 1914, immediately prior to the war, when H.M.S. "Philomel" was commissioned with ranks and ratings lent from the Royal Navy to serve as a sea-going training ship. In accordance with the Naval Defence Act, however, the ships and personnel of the force passed under the control of the British Admiralty during the war. H.M.S. "Philomel" was employed continuously in patrolling duties, and thus there was no opportunity for commencing any scheme of training; the provisions of the Naval Defence Act, therefore, remained in abeyance.

After the war, however, steps were taken to resuscitate the New Zealand Division, and it was actually called into being again in 1920 on lines which had been recommended by Admiral of the Fleet Lord Jellicoe in his tour of the Dominion in 1919. Since then it has received every encouragement from Lord Jellicoe, particularly when he was Governor-General from 1920 until 1924.

On the 1st October, 1920, H.M.S. "Chatham" was commissioned for service in the New Zealand Division of the Royal Navy, and Commodore A. G. Hotham, C.M.G., Royal Navy, hoisted his broad pennant in her at Chatham. Her crew consisted of Imperial officers and ratings loaned to the New Zealand Government for three years. The ship herself was loaned on very elastic terms, but it was understood that the New Zealand Government would be financially responsible for her upkeep in all respects as an efficient unit of His Majesty's Fleet. She arrived in New Zealand at the beginning of 1921. Early in that same year H.M.S. "Philomel" was also put into commission and berthed permanently at Auckland as a training ship. Recruiting was then commenced for the entry of boys for the seaman and stoker branches.

By 1923 it was considered that the New Zealand Division had advanced sufficiently to exchange the old coal-burning "Chatham" for a more modern cruiser, whose oil fuel boilers would be more suitable for the conditions and distances of the Pacific. Accordingly it was arranged for the "Chatham" to be relieved by H.M.S. "Dunedin." The latter ship left England in November and joined the Special Service Squadron for the first part of the Empire cruise. The turnover took place on their arrival in New Zealand, the "Dunedin" commissioning at Auckland as flagship of the New Zealand Division on 10th May, 1924. The "Chatham" then reverted to the Imperial Service and proceeded to the East Indies Station.

In the following year the New Zealand Government offered to maintain a second cruiser, and H.M.S. "Diomedé" was loaned on the same terms as H.M.S. "Dunedin." The arrival on the station of this second cruiser marked an important step forward in the development of the New Zealand Division after an existence of only five years. Both cruisers were of the same type, and spirit of competition could thus be introduced into drills and exercises.

In 1926 a further addition was made in the mine-sweeping trawler "Wakakura," purchased in England and now used as a sea-going training ship for the Royal Naval Volunteer Reserve at Auckland. From time to time one of the cruisers has had to return to England to re-commission or refit, but this does not affect the principle that two such ships belong to the Dominion.

It was agreed at the last Imperial Conference that the two "D" class cruisers should be replaced by "B" class in or about 1934, and in the meantime the facilities of the base at Auckland would be expanded in order to make provision for their refits on the Station.

There are two sloops, H.M. ships "Laburnum" and "Veronica," which are also employed on the New Zealand Station under the orders of the Commodore Commanding, but at the expense of the Imperial Government. Their duties consist mainly of policing the South Pacific Islands within the limits of the Station.

New Zealand's annual expenditure on Naval Defence has risen from £300,000 in 1923, to £600,000 in 1929. This latter figure includes a share in the cost of the Singapore Base. Nevertheless, the Dominion makes no claim to have her own fleet, like Australia and Canada, and the ships are referred to individually as H.M.S. and collectively as the New Zealand Squadron. The prefix H.M.N.Z.S. is never used. The only distinction is that the ships of the New Zealand Division wear the New Zealand ensign at the jackstaff in lieu of the Union Jack.

THE NEW ZEALAND STATION

The New Zealand Station extends approximately from the meridian of 160° East, which is 100 miles West of New Zealand, to the meridian of 120° West, which is half-way between that country and Cape Horn. It extends North to include Honolulu in Latitude 25° North, and South to the South Pole.

The Station thus includes the Dominion itself, the Cook Islands, which are governed by New Zealand, and the Samoan Group, mandated to New Zealand by the League of Nations. It also includes Fiji and a large number of the Western Pacific Islands.

New Zealand herself has a few large and excellent harbours, such as Russell, Auckland and Wellington in the North Island, and Lyttelton and Dunedin in the South Island. Other ports in the Dominion visited occasionally by the ships have small, exposed, artificial harbours, where there is always the risk of having to put to sea if a gale springs up, owing to the big swell that comes in. This particularly applies to Napier, Gisborne and New Plymouth in the North Island, and to Timaru and Greymouth in the South Island. Ample shelter can always be obtained at Whangaroa and Russell, in the Queen Charlotte and Pelorus Sounds, and in Paterson Inlet, Stewart Island. These are all large land-locked anchorages which could accommodate a large fleet.

ORGANIZATION AND COMMAND

A Naval Board was constituted by an Order in Council of March 14th, 1921, charged with the control of all matters relating to the naval forces

and vested with the executive command of those forces. The Board is composed of the Right Honourable the Minister of Defence (President), and its members are:—the Commodore Commanding New Zealand Station, First Naval Member; a Captain, R.N., Second Naval Member. The Secretary to the Commodore Commanding is Secretary to the Naval Board and is known as the Naval Secretary.

The Second Naval Member and the Naval Secretary carry out the executive functions of the Naval Board from the Navy Office, Wellington, which corresponds in all respects to the Admiralty on a small scale. The Staff Officer (Operations and Intelligence) and the Director of Naval Reserves are also at the Navy Office, but there is no technical staff there.

The Commodore Commanding attends meetings of the Naval Board when his flagship is at Wellington, and occasionally, when at Auckland or other ports, by proceeding to Wellington by train. The functions of the Commander-in-Chief of the Station are carried out from his office afloat, the Assistant Secretary being borne in the flagship.

PERSONNEL

Officers for service in the New Zealand Division are lent from the Royal Navy. No officers have been entered in New Zealand with the exception of the Chaplain of H.M.S. "Philomel" and certain Warrant Writers and Schoolmasters, some of whom have transferred permanently from the Royal Navy. The period of loan is three years, which includes the time spent on passage, and also foreign service leave on the usual scale on return to England. An officer, therefore, is unlikely to spend more than two and a half years on the Station. Each officer receives a special form of appointment, signed by His Excellency the Governor-General.

Several families in New Zealand have sent their sons home to be entered in the Royal Navy, through the usual channels, as Cadets; but it is not anticipated that New Zealand will enter or train her own officers for some years to come. No Midshipmen are borne in the ships of the Station.

There are at present some four hundred active service New Zealand ratings who have been recruited in the Dominion and have been or are being trained in H.M.S. "Philomel" at Auckland. So far as seamen, boys and stokers are concerned, there is no shortage of applicants and it is possible to select the best. The number of artificer and artisan candidates is not so satisfactory owing to the fewer openings ashore to skilled men of this type. Approximately half the seamen and stoker ratings borne in the two cruisers, therefore, are now New Zealand entries and a certain number of them are also serving at home undergoing

courses or gaining experience in the Atlantic Fleet. The type of recruit is well up to the Home standard and is producing good and smart seamen. The remainder of the ships' companies are obtained on loan from the Imperial Service on the same conditions as the officers. For many reasons service on the New Zealand Station is popular with Imperial ratings and there is no lack of volunteers.

No attempt is made to qualify New Zealand ratings in specialist branches on the Station ; but every year a number of suitable men are sent Home to pass for higher ratings, and also to gain some experience in Atlantic Fleet ships.

All ratings wear the same uniform as in the Imperial fleet, with the exception that the blue cap is not part of their kit, and the white cap and white cap-cover are worn all the year round. Tropical singlets and shorts are issued for wear in the Tropics.

It can be generally stated that the same clothing is worn as in England, and it is a mistake to assume that it is entirely a tropical station. The story so often heard in England that an overcoat is not required in New Zealand is a myth and though it may not be wanted so often, occasions arise when it is very essential to wear one.

The pay of officers and men is fixed by the New Zealand Government on the basis of the standard of wages ashore. Officers and men on loan from the Imperial Government receive the same corresponding pay as New Zealand ratings. The officers' pay is in nearly all cases the standard Imperial rate without the percentage reduction. The men's pay is considerably higher than the Imperial rate ; an able seaman draws 7/- per diem in lieu of 4/-, and other ratings are increased in proportion.

BASE

The Base of the Squadron is at Devonport, Auckland, in the North Island. The City of Auckland is on the South side of the Waitamata, the finest harbour of the Dominion, and Devonport faces the City on the North side. Their relations correspond to Portsmouth and Gosport. The Dockyard, including the Calliope Dock, is the property of the Auckland Harbour Board, but a subsidy of £5,000 is paid to them annually by the Government for the privilege of priority in the use of the dock for H.M. ships, for the use of the wharves and jetties, and for the right of building store sheds, etc., on the Harbour Board property. When in Auckland, H.M. ships secure to jetties which have been specially built in the Dockyard, and H.M.S. "Philomel" is permanently secured to a jetty close to the dock.

Large sums have been spent on the Dockyard in recent years with a view to its expansion as a repairing and storing base for such ships as may comprise the New Zealand Division in the future.

The Commanding Officer of H.M.S. "Philomel" is also the Naval Officer-in-Charge, Auckland, and is thus in command of both the Base and the Training Establishment. The Engineer Officer of the Base carries out the functions of Engineer Manager and Civil Engineer of the miniature Dockyard. The Accountant Officer of H.M.S. "Philomel" is the Naval Store Officer and the commissioned Torpedo Gunner is the Electrical Engineer.

The refits of the ships are carried out at the Base, where facilities now exist for all ordinary repairs. The cost of these refits compares very favourably with the cost of similar refits in Home Dockyards and the work is done equally efficiently; there are, however, one or two items for which the facilities in New Zealand are not sufficient, such as testing chain cable, optical work on telescopes and range-finders, and major items of electrical re-wiring. A 6-inch gun has been lifted satisfactorily by means of a floating crane, but this operation can only be performed in very fine and calm weather.

It is a great satisfaction to the New Zealand Government that their ships have now all the necessary repairing facilities in the Dominion and are practically independent of outside help; money spent on refitting also goes to New Zealand labour. It is the policy of the Naval Board that the ships should be kept up-to-date in all respects as efficient units of the fleet. Modifications and alterations authorised by the Admiralty for Imperial ships of the same class are invariably carried out. The refits of the sloops are also carried out at Auckland, but the cost is charged to the Admiralty.

ROUTINE

The programme of cruises varies somewhat from year to year, and is liable to be interrupted by such episodes as the search for the airmen lost in attempting the trans-Tasman flight in January, 1928; the serious troubles in Samoa, which required the presence of both cruisers in March; a visit to Honolulu for the Captain Cook memorial celebrations in August of the same year; and a most interesting cruise with the Australian Fleet in June, 1929, followed by visits to Australian Ports.

The cruisers usually go to Wellington in November each year to enable the ships' companies to carry out their annual musketry course at Trentham Military Camp, twenty miles from Wellington. Each watch spends a fortnight at the Camp which allows ample time for carrying out the course thoroughly and for additional field training and

physical training. It has been found that the routine of sending men into a military camp for fourteen days has a most beneficial effect on the health of the ships' companies, and the Trentham period is always anticipated with universal gratification.

Gunner and Torpedo practices are usually carried out in the Hauraki Gulf near Auckland, which is an ideal exercising area. A 145-foot battle practice target has been built at Auckland by a local firm, to Admiralty design, and is kept at the base. When required it is towed by one of the sloops.

ROYAL NAVAL VOLUNTEER RESERVE

A Division of the Royal Naval Volunteer Reserve was started in Auckland in 1925, and has been so successful that Divisions were started in Wellington, Christchurch and Dunedin in 1928. Each Division is conducted on very similar lines to those at home and every encouragement is given to them by the Commodore Commanding and the officers of the Squadron when they visit these ports. The men are excused military service, but the number of drills which they carry out is more than that required in the Territorial Force.

Up to the present there has been no lack of applicants both for officers and ratings in the R.N.V.R. Divisions and great keenness has been shown by all concerned.

Each Division has a drill hall containing a 4-inch gun with the necessary store rooms and offices attached. Rifle drill, gun drill, seamanship and signalling instruction is carried out, and each Division has a Chief Petty Officer instructor. All ratings carry out seven days sea-going training per year either in one of the cruisers or in the case of the Auckland Division, on board H.M.T. "Wakakura."

The intention is that this force would be employed to man local defence vessels in time of war.

LIAISON WITH MILITARY FORCES

Very close relations are maintained with the New Zealand Military Forces in all parts of the Dominion. New Zealand has a system of compulsory service, which can be briefly described as a Territorial Force which all men have to join for three years. The New Zealand Staff Corps provides a permanent cadre of Staff Officers, Area Officers, Adjutants and Instructors for this Force. The Royal Navy is always invited to participate in King's Birthday parades, Anzac Day parades, Returned Soldiers' reunions and similar functions. A naval team is always entered for the New Zealand Defence Force Annual Rifle Meeting.

By the invitation of the G.O.C., Naval and Marine officers took part in the Annual Staff Ride for senior officers of the Army last year and spent a very profitable week with them.

Combined operations were also carried out in the Hauraki Gulf near Auckland when a battalion of infantry and some engineers were embarked in the ships and disembarked at dawn by ships boats on an open beach. This was a most interesting exercise and provided valuable lessons in co-operation between the two Services.

Cordial relations are also maintained with the New Zealand Air Force, which has very much developed lately and is receiving every encouragement from the Government.

NAVY LEAGUE

The Navy League is a very strong and live institution in New Zealand with a great many branches. They are always ready with practical help, particularly in matters affecting the welfare of the lower deck, such as organizing dances or hospitality for the men in different ports.

LIFE ON THE STATION

The New Zealanders are exceedingly proud of their ships, which they regard as concrete evidence that they are doing their share for Imperial Defence. They show this pride by taking the greatest interest in them whenever they visit any port and by extending very genuine hospitality to the officers and men. On several occasions when a cruiser has been open to visitors in one of the smaller ports, 10,000 people have been on board to see the ship on a single Sunday afternoon.

The officers are invariably made honorary members of all Clubs and Golf Clubs and are also the recipients of a great deal of private hospitality.

For any officer, married or single, a commission in the New Zealand Division will provide a most interesting and enjoyable three years. The history, conditions, and point of view of the Dominions are matters about which all officers should be informed and the problems of the Pacific are a pleasant change from the more stereotyped exercises of the Atlantic and Mediterranean Fleets, and are no less important. No one who has visited New Zealand in one of H.M. ships can fail to be impressed with the wonderful loyalty which exists on all sides towards the King and the Home country and the lively interest which is taken in the problems of the Naval Defence of the Empire. The practical interest in and financial backing of the Singapore Base is an example of this.

THE BRITON AS A FIGHTING MAN

BY COLONEL C. FIELD, Royal Marines.

*"Oh, wad some power the giftie gie us
To see oursel's as ithers see us."*

SO sang the poet Burns, and in the following pages will be found a good many views of the British fighting man, both pro and con, and voicing the opinions of both friends and foes. We all know how the valour and endurance of the British race shone forth in the Great War, but never before had the whole flower of our manhood taken up arms. Before 1914 our fighting men, both by sea and land, represented but a comparatively small section of the nation and, in some periods, by no means a representative or very worthy section. Yet, withal, the innate fighting capacity of the race was always there, however poor the human material, and oftentimes it blazed forth with astonishing and victorious efficiency.

The modern race of Englishmen may be said to date roughly from the days of our first King Edward, by which time the various nationalities which had established themselves in this island may be said to have amalgamated and produced a national English type.

"Saxon, and Norman and Dane are we"

wrote Kipling, but we have yet other strains in our ancestry. What about the "Ancient Britons," for instance? Till quite recently, when the secrets of the buried city of Ur of the Chaldees have begun to be unveiled, we most of us thought of Abraham as "a dweller in tents," a well-to-do species of Bedouin. Now we find that he was "a citizen of no mean city." In like manner the blue painted savages of our childhood's history books, who masqueraded as our earliest ancestors, appear, upon investigation, to have been a very different type of humanity. They certainly had their skin covered coracles, but it seems that they also had really stout and formidable vessels. The Veneti, a kindred race, who inhabited western Brittany, without doubt had such vessels, for Cæsar has left us a description of them, and has told us what tough opponents his galleys found them. It is also known that the Veneti when attacked by the Romans received armed assistance from Britain, and what is more likely than that this took the form of similar vessels manned by Britons? Ancient British weapons and ornaments which have from time to time been unearthed tell a tale of a culture

far in advance of that indicated by historians harping on blue tattooing and coracles. Nor was Cæsar able to carry all before him. He found the British such tough opponents that his conquest was a very partial one. Tacitus says:—"The Britons . . . are a people who cheerfully comply with the levies of men . . . nor have the Romans any further subdued them than only to obey just laws, but never submit to be slaves."

Then the Romans themselves. The prowess and discipline of the Roman soldier has been held up as a model for centuries. The Romans were established in Britain for something like 400 years. Can it possibly be supposed that there is no old Roman strain in our British blood, and is it not much more than likely that some of their military virtues have permeated the Englishman? This brings us to the "Saxon and Norman and Dane" of Kipling. The Saxons do not seem to have been superlative either as soldiers or sailors—in fact, King Alfred had to man his ships with Frisians and other foreigners. But, reading between the lines of history, it would seem that the military qualities of *sang froid* and steadiness were not absent from their warriors. With the Danes and Normans we get the Viking strain. The Vikings were born warriors both by land and sea, their fighting spirit reaching its almost maniacal height in the "Berserkers" who would tear off their clothes and hurl themselves naked into the fray feeling endued with the strength of seven men.

Our Norman ancestors combined the Viking strain with a French one, so that we may perhaps lay claim to have inherited a small proportion of the *élan* for which the French fighting man is renowned. By the XIIIth century we may assume that the Englishman had arrived, in whom were combined characteristics of all of the British, Roman, Saxon, Danish and Norman races, though probably in somewhat unequal quantities. At first, however, if we may judge from the summing up of an old chronicler¹ who lived from about 1299 to 1363, the compound was not an entirely satisfactory one. "These men," says he of the English, "been spedful bothe on hors and on foote, able and redy to all manere dedes of armes, and beeth i-woned to have the victorie and the maisterie in everich fight wher no treason is walkynge. . . . they konneth bettre wynne and gete newe than keep her own heritage." The latter characteristic still remains, but it is typical rather of the politician² than of the fighting man. How often have not the conquests the latter has bought with his life's blood been given away or lost by

¹ Ralph Higden's "Polychronicon." (1299-1363).

² "Politicians are everywhere a rotten gang. They think of party and place and power in preference to the good of their country."—"Sidelights on the War," Diary of Lord Bertie, British Ambassador in Paris.

the former? "The English lose by treaties what they have gotten by victories" wrote Philip de Commines centuries ago, and this has remained true right up to our own times.

The fighting quality of the Englishman was established among European nations by the Battle of Crecy in 1346 when the battle was won by the high morale of our ancestors and their disciplined skill at arms. This and their further victories "made ye English so famous, that the Duke of Brittany warring against Charles VIII of France, to strike terror into the French, appparelled fifteen hundred of his owne subjects in English aimes, and under the English colours. But the asse is never the better for having putt on the lyon's skin, nor the Britons (Bretons) for appearing like English."¹

While the feudal system lasted the English fighting man was of a good social class and an excellent and renowned warrior, but he and the order of things which produced him, suffered eclipse in the Wars of the Roses. The warrior statesman and the yeoman warrior disappeared. To the mediæval baron, says an historian, "the value of an estate lay in the number of retainers it sent to his banner, to the Tudor landlord it consisted in the amount of revenue it paid into his pocket." Avarice was the failing of the Tudor monarchs. Henry VII² was close, his son pillaged the monasteries, and Elizabeth was stingy. What wonder that their immediate followers were tarred with the same brush. The Tudors did all they could to destroy the feudal bond, and the change of system naturally affected the nation from top to bottom. The yeoman class, from which the finest warlike material has always been drawn and which under the feudal system formed the backbone of our armies, was very hard hit owing to the land going out of cultivation. "Where there were once a great many householders and inhabitants," said Bishop Latimer, "there is now but a shepherd and his dog." England became a mere gold mine for the enrichment of the wool-staplers.

Henry VIII raised something of a paid army, but what little success it had in France was probably due to the excellence of the new artillery arm in which the King took great interest. But the profession of arms was at a discount, and went from bad to worse. "Such as had followed the wars," says an old writer at the end of the Tudor period, "are des-

¹ Historical MSS: Commission. Various Collections, Vol. II, page 196. Chalcondyles, who accompanied Manuel, Emperor of Constantinople to England in 1400, says also of the English: "The natives are bold and hardy, renowned in arms and victorious in war. The use of the long bow is the peculiar and decisive advantage of the English."

² "His grandfather, the butler of a bishop, and all the royal blood in his veins flowed from illicit connections."—Einstein.

pised almost of every man, until the very pinch of need doth come." Sir Walter Raleigh remarks that even in his day (1552-1618) there were "a middling sort of people, call'd yeomen and their sons, who made excellent foot-soldiers; but that species of people is now lost to the army, which is, owing no doubt to the value of money, sinking, as we increase in riches, and the pay of the soldier continuing the same, to the inlisting for life, and lastly to the contempt and disregard the Army is fallen into from these reasons and the bent of the nation to commerce."

Naturally, the best men would not come forward, and so resource was had to impressment. The little contingent Elizabeth sent to the Netherlands were nearly all pressed men, and are described as "the very scum of the world, swept out of the gaols and taverns at a moment's notice."¹ That the fighting qualities of the race, though smothered and discouraged, were not actually dead, is proved by the boldness and gallantry of our seamen and their leaders. The former were recruited from our seafaring population, which in quality might be considered as on a par with the disappearing yeomanry, the latter from the poorer class of the old aristocratic families,² so that the Navy, with its skilled and daring fighters, formed a great and glorious contrast to the poor showing of the Army, as the Spaniards found to their cost. Miserable as had become our military reputation, the following appreciation of the good and bad qualities of the English warrior written in 1617 is not without interest:—"In naval warfare they are not supposed to have any equals. They stand by one another, and are often seen to die together. They are spirited enough and have plenty of boldness in warlike exploits, though not very amenable to military customs. They are brave in fighting, and by no means timid, but full of resolution. They are the best of archers. Abroad, if things are going in favour of the enemy, they preserve good military discipline." This is by no means a bad character, considering the poor material. But, on the other hand, several very weak points are singled out. "Many are given to drunkenness," he says, "like the Germans. Without their accustomed rations they will not do much, and are little wont to work hard."

Under the Stuart Kings who succeeded Elizabeth both Army and Navy were at their very worst, and their overseas expeditions brought

¹ Fortescue. Vol. I, page 156.

² Capt. John Smith gives the names of several of such men who, finding their occupation gone in the "peaceful days of good King Jamie," sought a living among the Barbary Pirates.

³ "Metaphysica, Physica atque technica Historia," by Robt. Flud. (Armiger).

nothing but disgrace to our arms. What wonder then that decent material in the way of recruits was not forthcoming.¹

Our Scots fellow-countrymen had had through the middle ages at least as good a reputation as fighting men as the English, and moreover had not suffered from the revolutionary disintegration which in England had followed on the Wars of the Roses. An Englishman² writing between 1250-60 says of the Scots:—"The men are lyghte of harte, fiers and couragious on theyr enmyes. They love nyghe as death as thraldome, and they account it for slouth to dye in bed and a great worshyppe and vertue to deye in a felde fygthyng agynst enmyes."³ Again in 1550 a foreigner speaks of the Highland men as being "great soldiers," and quotes Don Peter de Ayala, the Spanish Ambassador to Scotland, as saying that the King had never any difficulty in raising armies, and that "any who are not summoned to take part in the war would consider themselves slighted and under the displeasure of the King," and further that he himself "had seen them several times in the field, and that he never saw anything better appointed."⁴ What a contrast to the Tudor Armies!

The Civil War between Charles I and his Parliament brought all kinds of people into battle harness who otherwise would have left the fighting to be done by the good-for-naughts and wasters. Notably it produced Cromwell, who has been considered by some authorities to have been the finest cavalry leader the country has ever had. His new Model Army and the care he bestowed on the Navy⁴ brought the British fighting man from being the scorn of foreign nations to be the object of their dread and unwilling admiration. Moreover, his army, though disbanded at the Restoration, laid the foundation of the British Army of to-day, since many of its veterans were absorbed into the army of Charles II. But once again the British fighting man deteriorated from want of representative material. The Duke of Schomberg, an experienced soldier, who, though a Frenchman by birth, loved to call himself an Englishman, had the poorest opinion of the English troops who served under him in Ireland. "The Enniskinnerers had learned to fight though they preferred to plunder. The Dutch knew how to keep their tents dry and clean, and if the English soldiers had condescended to copy them they need not have sickened and died in such numbers. But the numerous English and Irish recruits had to learn how to fire a gun; . . . Officers as well as privates had to be drilled and instructed;

¹ "I dare say," wrote Sir Edmond Verney from the King's camp in 1639, there was never so raw, so unskilful, and so unwilling an army brought to fight."

² "De Proprietatibus Rerum" by "Bartholomew the Englishman."

³ "A Relation of the Isle of England abt. the yr. 1500."

⁴ In 1652-3 half the national revenue was spent on the fleet.

and many of them were very unwilling to give regular attendance. So the Schomberg, when such men clamoured to be led into action, good-naturedly said, 'We Englishmen will fight, but we do not love to work.'"¹ He was quite right about the fighting. Story tells how the British soldiers at Aughrim "marched boldly up to their old ground again from whence they had been lately beat; which is only natural to Englishmen: for it is observable that they are commonly fiercer and bolder after being repulsed than before; and what blunts the courage of all other nations commonly whets theirs—I mean the killing of their fellow soldiers before their faces."² The fighting spirit it will be observed, was there, but it was badly handicapped by the reluctance of both officers and men to take the trouble to make themselves efficient soldiers. The respect which Cromwell had gained for the British soldier had vanished. As for the seaman, gross ill-treatment had sapped his patriotism. In the Dutch Wars he had hailed his old comrades from the enemy ships, crying, "before we fought for tickets, now we fight for dollars."

Despite Marlborough's victories, and the successes of our armies in Spain, it was a long time before the British soldier gained that respect among his countrymen which he had forced upon the foreigner. In a letter to Sir Thomas Frankland from a correspondent in Venice in 1705, the writer says of the secular priests in that city, that "they are as contemptible as a common soldier in England."³ But he spoke too soon, for once again the genius of a born leader of men brought out all that was good and soldierly in the British character from somewhat indifferent material. Marlborough continued on his victorious career, and the British army achieved a European reputation, second only, perhaps, to that of the archers of Crecy and Poitiers. The appearance of the red coats over against his left wing at Ramillies threw Villeroy into a state of nervousness that had much to do with his loss of the battle.

Wolfe, a keen reformer, had at one time but a poor opinion of our rank and file. After the failure of the expedition to Rochefort, he says of our troops:—"These disappointments, I hope, won't affect their courage; nothing I think can hurt their discipline—it is at its worst." Yet after Dettingen, Lord Charles Russell of the Guards, who was present, wrote to his wife, "Our men and their regimental officers won the day . . . The English infantry behaved like heroes, and as they

¹ "French Protestant Exiles." Agnew, 871.

² "Impartial History of the Wars in Ireland." G. Story, 1693.

³ Hist. MSS Commission. MSS of Mrs. Frankland-Russell-Astley, of Chequers Court.

were the major part of the action, to them the honour of the day was due."¹

At Culloden the bravery of both English and Scots was well tested, and both evinced a spirit well worthy of the British soldier. Here, though probably the material of which the rebel army was composed was superior to that of the Royal Army, the discipline of the latter doubtless won the day.

Of the British troops in the middle of the XVIIIth century the historian of the Seven Years' War wrote as follows: "The English are neither so lively as the French nor so phlegmatic as the Germans; they resemble more, however, the former, and are, therefore, somewhat lively and impatient. If the nature of the English constitution admitted some degree more of discipline, a more equal distribution of favours, and a total abolishment of buying and selling commissions, I think they would surpass, at least equal, any troops in the world."² Yet in spite of adverse, and apparently more or less justifiable opinion, the expeditions against Quebec in 1759 and Belleisle in 1761 were carried out to a highly successful termination. One thing was abundantly manifest, and that is that our soldiers, however poor in quality from a social point of view, evinced a high quality of courage and determination. The blood told. At Minden, too, six British infantry regiments actually advanced and attacked the flower of the French cavalry just as they were about to charge.

The issue of the revolutionary war in America brought no lustre to the British arms. The result was in no way due to a want of the British fighting spirit, though reading between the lines of contemporary diaries and of general and regimental orders, the material in the ranks was none of the best. But the victory of the rebellious colonists brought the prestige of the British soldier to a low ebb. On the other hand, the fighting spirit of the nation was vindicated by the brilliant work of the Navy between that time and the end of the century, although a large proportion of its personnel was, to say the least, no better than that of the sister Service, composed as it was of pressed men, and "quota" men relegated to the Navy by the magistrates.

At the end of the eighteenth and beginning of the nineteenth centuries it was little, if any, better than it had been a hundred years previously.

¹ Hist. MSS Com. MS of Mrs. Frankland-Russell-Astley, of Chequers Court.

² "History of the War in Germany," Gen. H. Lloyd, 1781. Vol II, page xxxv. The question of the sale of commissions is outside the scope of this article, but in the opinion of Mauvillon, a French writer of 1788, it was on account of the purchase system that our officers did not trouble their heads about the Service, nor take the trouble to make themselves efficient.

"The very scum of the population was drawn into the Service, and it was only by an iron discipline and a barbarous code of punishment that anything like order would have been possible in nine out of ten ordinary corps."¹ In the writer's own recollection, to say that a young man had "gone for a soldier" was, among the rural population, synonymous with saying he had "gone to the devil." Wellington regarded the low social status of the recruit to be inevitable, as also the old drastic means of preserving discipline. In the Peninsular War its fighting excellence came as a startling surprise to the veteran French armies, just as did the endurance and skill at arms of "the old Contemptibles" to the self-confidence of the German masses in 1914. A French officer wrote of the English at Corunna that "they had behaved well, and were not degenerate as they were often said to be." Jomini, while eulogizing the column formation in the attack, qualified his remarks by saying that "against the murderous fire and the *sang froid* of the English infantry, columns did not have the same success." Marshal Bugeaud has a good deal to say about this. "The English," he writes, "generally occupied well-chosen positions, having a certain command, and they shewed only a portion of their force. Soon, in great haste, without studying the position, without taking time to examine if there were means to make a flank attack, we marched straight on, taking the bull by the horns. . . . The English remained quite silent, with ordered arms, and from their steadiness appeared to be a long red wall. This steadiness invariably produced an effect on the young soldiers. . . . Very soon we got nearer, shouting, 'Vive l'Empereur, en avant ! à la baïonnette !' . . . The English line remained still, silent and immovable, with ordered arms, even when we were only three hundred paces distant, and it appeared to ignore the storm about to break. . . . Our ardour cooled. The moral power of steadiness, which nothing shakes, even if it be only in appearance, over disorder which stupifies itself with noise, overcame our minds. At this moment of intense excitement the English wall shouldered arms, an indescribable feeling rooted many of our men to the ground, they began to fire. The enemy's steady concentrated volleys swept our ranks: decimated we turned round seeking to recover our equilibrium; then three deafening cheers broke the silence of our opponents; at the third they were on us, pushing our disorganised flight."

"Fas est ab hoste doceri" says the old Latin adage, and on the strength of this another French general may also be quoted. This was General Foy, who praises the silence, coolness and obedience of the British infantry which, in his opinion, caused their fire to be better

¹ "Our Army," Capt. Owen Wheeler.

aimed and more destructive. Foy explains the excellence of the British soldier's morale as follows:—"His constitution is robust from the exercises of strength to which his youth has been accustomed. His soul is vigorous because his father has told him, and his officers have never ceased repeating to him, that the sons of Old England, plentifully replenished with porter and with roast beef, are each of them equal to at least any three of the pigmy races which vegetate on the continent of Europe. . . . Their courage being more physical than moral, requires to be supported by substantial fare. Glory never makes them forget that they are hungry, or that their shoes are worn out."

There were not a great number of British troops at Waterloo, and a considerable proportion of these were young and untried men. Yet, time after time, they repelled the fierce attacks of the French veterans. Napoleon, turning to Marshal Soult, said, "These English are devils; yet though they fight bravely they must give way soon." Soult, who had made acquaintance with the British soldier in the Peninsula, had a different opinion. "Sire," he answered, "I know these English; they will be cut to pieces sooner than retire!"

When the Russian War broke out in 1854 neither in numbers nor in other respects were the Army and Navy in a proper state of preparation. A contemporary French writer gives the following opinion of the British nation and its attitude to its fighting forces at that time, which, to judge from later experience, would not seem to have been very wide of the truth. "Assuredly," he says, "the English are a military nation and love fighting, in their own way. They are proud of their soldiers, too; but their parsimony is great . . . and when they go to war, they use them all up in the first brush with the enemy. Indeed, they keep up so few regiments to do the incredible quantity of work they give them, that they soon work them to death. In England, the Army and Navy have always a faction against them which endeavours to cut them down and pare them away to nothing." It seems more than probable that this attitude was as much responsible for the "Great War" as the "militarism" of Germany. Had we been able to put a million men in the field at the outbreak of a war, and had we announced that, in the event of a German attack on France or Belgium, we were prepared to go to the rescue, does anyone for a moment imagine that Germany would have gone to war? In the Crimean War of 1854-5 our fleet was undermanned and, as a naval officer¹ has written, "Public opinion resented the revival of the press-gang; therefore, the only alternative was the offer of a large bounty, and by this means the ships were filled with counter-jumpers and riff-raff of all sorts, and

¹ "Two Admirals," by Admiral John Moresby.

rarely a sailor among them." The Army was in no better case. Yet ill-fed, ill-found and ill-clad, our soldiers at the Alma, Inkerman and other hard-fought battles fully maintained the fighting traditions of the British race.

At the outbreak of the Egyptian War of 1882 the human material of our Army and Navy had considerably improved, and in this and in the prolonged operations in the Sudan which followed the inborn pluck and steadiness of the race was supplemented by the intelligence born of better education and training.

In the South African War (1899-1902) the British soldiers were, perhaps, of a superior type to any of their predecessors, so that Lord Roberts was able to write of them that "They bore themselves like heroes on the battlefield and like gentlemen on all other occasions." A fine compliment indeed, voicing an opinion very different from Wellington's estimate of his Peninsular veterans.

In the Great War, as we all know, all the warlike virtues of the British race were pre-eminent. The efficiency of the little Army of "Old Contemptibles" came as a startling surprise to both friend and foe. The shooting of the British infantry was "wonderful," said a French officer. "We had never expected anything like it; it was staggering," said a wounded German officer. Soon the whole of the best manhood of the nation was fighting ashore or afloat, and never before had we put such fine human material into the field, as our enemies found to their cost. Golden opinions of the British fighting-man in the Great War could be quoted without end.

All this courage and warlike prowess are just now at a discount, because very many people seem to think that because we don't want war and its horrors it may be *wished* into extinction. To these are recommended the words of Sir Ian Hamilton:—"To-day pacifists speak to the converted, but their young sons have been born with the old instincts. Nothing will stop war save the Second Advent of Christ."¹

"Walled towns, stored arsenals and armouries, goodly races of horses, chariots of war, elephants, and the like . . . all this is but a sheep in a lion's skin, except the breed and disposition of the people be stout and warlike." (Bacon.)

¹ In his article on "War," in the new "Britannica."

THE PRINCIPLES OF WAR

ANOTHER DIALOGUE

By REAR-ADMIRAL C. V. USBORNE, C.M.G.

On Stage ; The Philosopher and the Student of War conversing.

PHILOSOPHER : And so you have published our principles ; well, I am delighted. And how have they been received ?

STUDENT : Their reception has varied. Some liked one thing, some another. Nearly all had some fault to find. At last arose a learned man renowned for his knowledge of past wars who buried our young principles under a mountain of criticism, and on it planted crosses inscribed with names of great campaigns.

PHILOSOPHER (putting away his books) : Did he ! This is most interesting. You must tell me all he said, and we will get out our spades. But first, let me recall, were you not, at our last meeting, complaining of mental indigestion arising from an attempt to swallow a number of abstract ideas masquerading as principles ? And was not the main theme of our argument that principles *must* be formulated, or they are not principles. What says our critic of that ?

STUDENT : He does not mention it.

PHILOSOPHER (rubbing his hands) : Then may we not take it that our main proposition is accepted, since so high an authority, setting out to destroy us, has left it standing.

STUDENT : Why yes, now you put it so. And when I remember that our critic himself tried his hand at formulating three of the old principles,—Economy of Force, Security and Mobility,—it seems clear that he must accept our main contention.

PHILOSOPHER : Bravo ! That is indeed a great step, even if our actual principles have been torn to ribbons. Let us see how our other broad generalisations have fared. We started, if I remember rightly, with a definition of war. "War," we said, "is a conflict between nations, conducted by men equipped with weapons, wherein each antagonist seeks so to injure the opposing nation that it will sue for peace for fear of further injury ?" What said he to that ?

STUDENT : He said that he did not agree that nations sue for peace for fear of further injury, and that, if put to the test of experience, this would be found to be not proved. He quoted several wars, and asserted

that it was not fear that worse would befall him, but consciousness that he could no longer gain the object for which he fought which caused a beaten army to make peace.

PHILOSOPHER: Oh indeed! Then are we to understand there was no fear in the hearts of the French when, swallowing their intense national pride, they surrendered to the harsh terms of the Germans who surrounded their starving capital in 1871? And what of the Germans in 1918; had they no fear of starvation as the death rate grew and grew; none of invasion, of national disintegration even? The Spaniards, when the Americans had taken their colonies and destroyed their fleets: what would the next move have been? Something more unpleasant I doubt not. So it is in all wars; the vanquished, having suffered much, fears more. War is no pretty game of chess, but a passionate struggle for existence wherein all the primitive instincts are unmasked. What says Foch, Marshal of France:—"the mood of discouragement, of *terror*, wrought in the soul of the conquered by the victor."¹

It is merely a question of degree, some nations give way sooner than others. Our critic has looked, perhaps, only on the surface of things!

STUDENT: I am dumb before you, oh my father, truly your words search the heart. I think I had better now take his remaining criticisms in order, so that you can remark on them in the same sequence.

He begins by saying that, if the Principles of War include those on which armed forces must be organised, developed and administered, then they should deal, not only with weapons, but with good organisation, adequate supplies, sufficient transport and a full treasury.

PHILOSOPHER: How very true! Surely we did not omit to do this.

STUDENT: We made no mention of "boots," or, indeed, of a variety of things.

PHILOSOPHER: Man is a tool-using animal. If such tools as are used for the waging of war are usually termed weapons, then a soldier's boot is a weapon in so far as it is different from the boot he would use as a civilian.

STUDENT: If you choose to give weapons that general significance, I must agree.

PHILOSOPHER: Man, by himself, makes but a poor show in war, but with its varied paraphernalia he becomes a warrior. His warships, his aeroplanes, his helmet and his boots, his paravanes, his pitprops, his tankers and tinned beef, all these are the weapons of war. It is not that I choose, but that I know no other word than weapons to describe the tools of war. A word I must have, if I am to frame broad principles.

¹ "The Principles of War," by Marshal Foch.

STUDENT (gently): Yes, but not the wrong word. Doubtless our critic understood the word to mean rifles, guns, torpedoes; things which deliver blows.

PHILOSOPHER: Guns do not deliver blows; the shell does that. Clearly you cannot draw a line anywhere. All the tools of war are weapons; that at all events is our meaning when we talk of weapon value as a factor of strength.

STUDENT: Very well; but what about administration and a full treasury? Surely he defeats us there.

PHILOSOPHER: If the tools of war are weapons, then administration is a part of skill in handling them. Did we not mention skill?

STUDENT: We did. Our statements seem to have been drawn more comprehensively than I thought at the time.

PHILOSOPHER: They were drawn to cover the war problems of a Cabinet as well as those of a private of Marines. As to a full purse, did we not make a special note concerning national credit or national endurance, and is not good credit the equivalent of a full purse? If so, all is well. What next?

STUDENT: Our critic then alleges that the more ordinary application of the Principles of War is limited to the "employment of armed force."

PHILOSOPHER: Then why not call them the Principles of the Employment of Armed Force. Apparently he admits to a misnomer. For my part I believe that the Principles of War should govern the whole of war.

STUDENT: I cannot quarrel with that, it is obvious. Yet I think you had better hear what he says, as his remarks on this point appear to contain the germ of the disagreement between us. He says that his is the common interpretation, and while admitting that armed forces cannot fight unless their weapons are approximately equal, that the weapon question being one of supply, falls outside the scope of these principles.

PHILOSOPHER: It may come outside the scope of his principles, but it is very definitely a part of mine. Fighting is so largely a question of weapons that to rule them out when formulating principles is to distort the issue beyond hope of repair. To say briefly, "Weapons are equal, forget them, let us talk of principles," is the most dangerous fallacy of which I ever heard. No wonder you suffered mental indigestion if the principles you were engaged in swallowing made so serious an omission.

Weapons are rarely, if ever, equal, and the consideration of how to obtain weapon superiority, temporary or permanent, at the point of contact with the enemy must ever be in the thoughts of him who fights

to win. Perhaps our critic has forgotten the words of the great Marshal Foch at the moment of his triumph in 1918¹:—"But simply as a result of the progress of armaments and of the development of industry, the Art of War has undergone a profound evolution by the employment of new expedients. To cite but one example, the machine gun and barbed wire . . . have given to the trench, or to a natural obstacle, a solidarity which admits of organizing a wide defensive system easy to hold. The offensive, momentarily impotent, has sought new weapons. It has organized tanks (*chars d'assaut*), capable in all terrains of having the mastery of the system of wire and machine guns."

"In addition to a production of guns and a consumption of shell in proportions hitherto completely unknown, has come the production of other weapons demanding again 'steel.' It is, thus, the industrial power alone of nations which permits them to attack, or their lack of it that forces them to the defensive, just as much as the number of their soldiers. . . . In aviation gigantic technical progress assures the mastery of communications and of the air to the best and most powerfully armed of the two combatants. Thus one sees these are indeed new conditions for the art of war, already being waged with new weapons. One may as well say it is a totally new art. . . . It remains, therefore, ever necessary to establish the Principles of War."

Again he says, "we experienced some unhappy surprises at the very beginning of hostilities. We had stepped into a hornets' nest so to speak. We then believed that morale alone counted, which is an infantile notion."² And later, "in 1918 and 1914 we had the same number of soldiers, but in 1914 each battalion had 2 mitrailleuses and no machine guns, in 1918 it had 12 mitrailleuses and 36 machine guns." He goes on to make similar comparisons with other weapons, and then says, "you see I was right in saying that our army in 1918 was utterly different in equipment from our army in 1914. Anyone who sets out to get at the inner meaning and philosophy of war must take that factor *above all* into account."

In the face of these mighty pronouncements, fresh from the lips of the great *Penseur conquérant*, how can our critic maintain that the weapon question, being purely one of supply, falls outside the scope of these principles?

Let us take an instance from the play, "Journey's End," which I am told is true to life in some respects. A daylight raid on the enemy's trenches is to be carried out with the object of identifying the regiments

¹ Foreword to the English translation of "The Principles of War," by Marshal Foch. The Foreword is dated 1/9/18, and is in French.

² "Marshal Foch," by Raymond Recouly, pages 115, 120 and 121.

of new arrivals. I shall show that in planning this raid all four elements of strength are considered and Principles II. and III. are applied. First, 'numbers': enough men are chosen to swamp with irresistible superiority a tiny point in the enemy line. Second 'morale': brave, determined, men and a keen young officer are selected and are heartened with a tot of rum, a promise of reward and a joke. Thirdly, 'skill': an experienced officer commands, all the men are already trained to a hair in bomb-throwing and close fighting. The raid is planned: every man's duty is clearly explained. Lastly, 'weapons': a carefully thought-out barrage, which will keep the enemy in their dugouts and cut the wire, is the immediate preliminary. Rifles are discarded; men carry Mill's bombs and bayonets; officers revolvers in addition. You see careful thought about weapons must come into this and every operation of war.

Take a step higher in the scale. Consider Carden's destruction of the outer forts at the Dardanelles. The whole plan which succeeded so completely was a close appreciation of the power of the various ships' guns as against that of the forts, and the employment of the former in such a way as to deny the latter the power to answer until they had been severely handled.

Let us step up once again, this time to the Admiralty. When Lord Fisher sent the two "Invincibles" off to deal with von Spee it was surely on their irresistible superiority in speed and gunpower that he was relying to make certain they should do this work.

Any set of principles that tacitly assumes equal weapons, then, is legislating for conditions that can never arise. They must be considered in every war plan, great or small, and it is when *planning* your next move that you want your principles.

STUDENT: Enough, my father, I think that point is answered. But our critic's next is that even if the supply of weapons is to be included in the Principles, they are not "immeasurably the most important factor of strength."

PHILOSOPHER: Did we say "immeasurably"?

STUDENT: You did say so in the course of the argument, though you omitted it in your final enunciation of the Principles.

PHILOSOPHER: It is an emphatic word and vague in its meaning. I can well understand that it might raise in the mind of the reader the idea that the other factors are by contrast unimportant, whereas, of course, all four factors are vital.

STUDENT: Perhaps we went too far in one direction in our desire to emphasize a fault in the other.

PHILOSOPHER: Possibly! Exaggeration, though permissible in the narration of fishing stories, is unpardonable in philosophy. Let us acknowledge a point and withdraw "immeasurably."

STUDENT: Would you still hold, then, that weapon value is the most important of the four factors? For it is this statement above all others on to which adverse criticism has fastened.

PHILOSOPHER: That does not surprise me. The importance of weapons, though obvious, has been put in the background by teachers lest it should overcrowd that of morale and skill. We, like Foch, have dragged it out, for its omission distorted and rendered foolish the academic teachings. Having done so we can now omit from our Principle III the qualifying words "and of these weapon value is the greatest factor." Not that it is untrue, merely that it is redundant.

The principle will then read "Strength is the product of weapon value, skill, morale and numbers." This is adequate and to say more in a principle is unnecessary.

But that weapon value is in fact the most important of the four factors can be shown thus. Without his weapons—man, as a fighter, is insignificant. They change him more drastically than any other factor. That is the first reason. Then, the power of weapons is always increasing, and rapidly too; therefore they need the closest watching, or you will be left behind. That is the second. The possession of better weapons has a great effect on the morale, it improves it; and morale, in turn, reacts on skill in handling the weapon. Supply inferior weapons, and, as soon as the unfortunate soldier gets to know of it, his morale goes down and his skill follows. The converse is not true; neither high morale nor great skill in their use will have any effect in improving the weapons themselves. For these three reasons I accord weapons the premier place.

STUDENT: We are so used to them that we perhaps forget what we owe them, just as we forget the air we breathe.

PHILOSOPHER: His tools are man's best friend in the world. Let him not deny his friend.

STUDENT: He fears that by admitting their importance he might belittle himself.

PHILOSOPHER: Does praise of the statue belittle the sculptor? Man is immeasurably greater than his tools.

STUDENT: Take care, my father, you have used that word again.

PHILOSOPHER: I retain it. There is no scale by which man can be measured against the things he has created.

STUDENT : Your critics will be grateful for that concession.

PHILOSOPHER : I am always ready to concede the obvious.

STUDENT : Next our critic states that between modern nations material discrepancies of an influential character do not arise in practice.

PHILOSOPHER : In reply I will merely ask you out of your own experience of war to quote a few examples of influential weapon differences.

STUDENT : Let me see. I might start with the defects in our shell at Jutland. Lord Jellicoe explains this in his book. On oblique impact the shell broke up instead of doing their duty. Thus the German battle cruisers, all but one, and the battleship "König," though unmercifully pounded, remained afloat. If the shell had been efficient they must infallibly have sunk, and the consequences would have been far reaching. The dissimilarity, for the German shells were far better, more than corrected another dissimilarity, namely that our guns were of 15-in. or 13.5-in. calibre against the German 12-in. and 11-in.

PHILOSOPHER : So small a cause, so great a result ! How sad ! What did the Navy do ?

STUDENT : It put the shell right without delay. But we never got another chance.

Then there was Coronel, where the enemy defeated us with superior weapons, in spite of magnificent morale. Or, again, the Falklands where by our weapon superiority we annihilated the enemy. I suppose the introduction of gas by the enemy and of tanks by ourselves might also be cited as classic examples not only of weapon difference, but of the failure to realise its value.

Probably if we had possessed the paravane early in 1915, our fleet could, if required, have steamed straight up the Dardanelles without the laborious operation of destroying the forts and sweeping the mines. This, however, merely shows what dissimilarity might have done.

Then there is the new German cruiser. I doubt any other nation being able to emulate it even now. . . .

PHILOSOPHER : Enough ! It cannot seriously be contended that between modern nations material discrepancies of importance do not arise.

STUDENT : Well then, you are accused of being unscientific in drawing such sweeping conclusions from a few extreme examples : "the Norman invasion stopped by two machine guns," and so on.

PHILOSOPHER : My son, these were not observations from which a principle was derived, but extreme cases to illustrate something already

clear to me but not to you. They were examples of the mathematical device "reductio ad absurdum."

STUDENT: Our critic then asks with reference to our statement that dissimilarity (in weapons) occurs as often as similarity, where is the dissimilarity?

PHILOSOPHER: You have already quoted a few good cases. I will add one more from history. I am informed that it was Henry VIII who first mounted big cannons on the broadside in his warships. For years the rest of the world went about with ships without gunports and guns only at the bow and stern. To this material discrepancy I believe England largely owes her rise to sea power in Elizabethan days, and all our subsequent history right up to to-day must have been affected by it.

STUDENT: I make bold to add another. Sir C. Douglas, writing to Middleton about improvement in goose quills and arcs of training says¹:—"Such ships as have their guns fitted accordingly derived unspeakable advantage from some improvements lately made in naval artillery, their fire having been so very quick and well directed, and extending so far to the right and left that the French cannot comprehend how they came to lose so many men and we so few on the late bloody day."

PHILOSOPHER: Our ancestors remembered the value of weapon superiority: our critic would have us believe he has forgotten it.

STUDENT: I fear we have almost reached the limit of the space I have been allotted for your comments. The most important criticisms have been dealt with, and though there are many other points, I must endeavour to group them together. Thus, our critic says you have given a false interpretation to the principles of Economy of Force, Security, Surprise, and Mobility. He does not deny the truth of your phrases, but asserts that they only in part express the verities covered by these words.

PHILOSOPHER: I will meet you in your desire for economising words, and point out that we did not set out to supply phrases to express what is meant by the old eight so-called principles. No! we started out afresh, free from all previous conceptions, and wrote down those things which we knew to be true about war. These facts or laws we called principles, but we expressly avoided the old names. Your critic's shots therefore fall wide of the mark. He should look instead to see whether the idea he finds omitted from one of our principles is not embodied in another. If, as I think, it is, we are justified. If not, we should add some more principles, always providing the idea is true and of value. We merely claimed for the set we evolved that he who followed them could not lose in war.

¹ "Barham Papers." Vol. I, page 280.

STUDENT: How modest! Even the greatest leaders have lost battles.

PHILOSOPHER: Then without even hearing an account of how it happened I can quote against them Principle No. II, "Be stronger than your enemy. In every encounter the stronger force at the point of contact will prevail."

STUDENT: Yet often the losers have had more men, better guns, bigger ships.

PHILOSOPHER: Please study No. III. This re-iteration wearies me. Somewhere in the elements producing strength they failed, it may have been in skill, or in morale, or in weapons, or in numbers, what matter which; in the product "strength," they were inferior, therefore they lost.

STUDENT: Your position seems unassailable, since you make "strength" cover the unknown cause.

PHILOSOPHER: Bravo, my boy. The idea is reaching you at last.

STUDENT: Our critic now attacks Principle No. VI, "The belligerent must choose as his object the infliction of the greatest injury within his power to encompass in a single operation." This he says does not stand up to the test of experience in successful war. He quotes four examples. Accordingly he asks whether in the Spanish War the United States set out to inflict the greatest degree of injury within their power to encompass in a single operation.

PHILOSOPHER: I rather gather they did. They destroyed the fleet at Manila, one operation; they landed in Cuba and took it; they destroyed the Spanish fleet sent out to the West Indies. They could hardly have taken bigger steps, and it seems that the steps they took were not too big; they correctly foresaw the end of each. This war is an admirable example of the Principle's fulfilment. Though even if they had not fulfilled it, this would not necessarily have precluded their victory.

STUDENT: I quote from our critic: "Frederick the Great, in the Seven Years' war, never attempted, because he was not strong enough, to overthrow Maria Theresa."

PHILOSOPHER: This again is an apt illustration of the Principles. He did not attempt it because he was not strong enough; that is he refrained from operations beyond his power to encompass. Just as the Principle enjoins!

STUDENT: Lastly, may I touch on his attack on your Principle No. IX dealing with Mobility. He says you express it in terms which associate it solely with surprise. Your principle was "To possess mobility superior to the enemy's gives power to deal with the unexpected and to inflict it."

His definition is "The conduct of operations requires the possession at all times and the use of movement."

PHILOSOPHER: His meaning is clear, but we are speaking of different things. He is insisting that weapons must be capable of being moved, otherwise they cannot be brought to bear on the enemy and are useless. In our set of Principles that undoubted truth is covered by the emphasis in No. II that your strength must be brought to the point of contact. Something is required, however, to guard against surprise and enable plans to be quickly formed and executed. Superior mobility, both mental and physical, is what I have to offer to counter the unexpected. It is to emphasize this necessity, and to correct an impression which might be inferred from the remainder that a well-planned war would march on without let, hindrance, or alteration of plan to the end, that we thought it necessary to include this Principle. It is framed therefore, and I think rightly, to emphasize the capacity for rapid execution or rapid change of plans to inflict or meet the unexpected. The unexpected ever occurs in war.

STUDENT: We have now run through the criticisms with fair thoroughness, even if I have missed some minor points.

PHILOSOPHER: And I think answered them all. Please convey my thanks to your erudite critic for his helpful remarks. There is not in reality much between us. The necessity for defining the principles, and for considering weapons in the planning of every operation are our main points and I doubt his denying either. Our Principles progress in an ordered sequence, logically indicating what should be done. The dust cloud of surmise and ignorance, inseparable from war, is condensed, swept into a corner and covered by "Judgment."

To me, our Principles seem simple and comprehensive, and capable of being defended against all attacks. Others may prefer the old abstract ideas. Be that as it may, I do not doubt that ours are capable of being better stated. Some points receive more, some perhaps less emphasis than their share.

STUDENT: I shall adopt them as they stand and watch the result.

PHILOSOPHER: They will not fail you. Farewell.

Exit Student.

THE CONDUCT OF MODERN WAR¹

BY LIEUTENANT-COLONEL H. DE WATTEVILLE.

I.—STRATEGY IN MODERN WARFARE.

THE modern industrial state, with its world-wide trade interests and international financial responsibilities, cannot initiate, still less conduct, any major war in the same manner as was done by European monarchs of the XVIIIth century. The close connection of commerce and warfare, as well as the potency of the economic weapon, had been frequently exemplified ever since the Peloponnesian War of over two thousand years ago, if not long before then. But the possibilities inherent in that combination seem to have been considerably overlooked, if not repeatedly forgotten, during the ensuing centuries. A glimmering of these realities began to dawn once more upon the belligerents during the Anglo-Dutch Wars of the XVIIth century, while the British Admirals of the XVIIIth century learnt by experience to appraise the true meaning of sea power and economic warfare combined. Nevertheless, the glamour of the Napoleonic campaigns ended by concealing these truths from European statesmen and soldiers as a whole. It is a fact that the French Emperor had made an attempt to attack Great Britain by an economic blockade, but his failure seems only to have blinded European military thinkers and writers to the growing importance in war of national assets other than purely military force, backed in certain cases by naval force. The soldiers of the XIXth century sought to find the salvation of their country in war by military force alone. So the process went on until the Prussian campaigns of 1866 and 1870 still further exalted the place of the soldier in controlling his country's fortunes in time of war. That this was so, and indeed could be so, was due to the fact that Prussia and her allies were almost entirely agricultural, as well as to the circumstance that only one campaign was afoot—and virtually no naval operations—while finance and trade had little influence on the course of those wars. Still, in

NOTE.—The author wishes to state that the discussion of this topic was initiated some months ago. Since then the perusal of two new books, "British Strategy," by Major-General Sir F. Maurice, K.C.M.G., and "The Decisive Wars of History," by Captain B. H. Liddell Hart, has caused him to recast the following pages, so as to make extensive use of these works.

spite of these conditions, symptoms were not wanting that a clash between the interests of the statesman and of the soldier had not been far from materializing. On at least one occasion the tension between Moltke and Bismarck grew so acute that the former had tendered his resignation to the King of Prussia as his titular Commander-in-Chief. But victory so far obliterated all these recollections, that in German political and military circles the power of the "mailed fist" resting on visible proof of the advantages to be derived from a successful military campaign, grew into a fundamental dogma in the national faith.

It is true that there is reason for the view that in 1871 Bismarck may have had a clearer appreciation of the truth: so far that it has been alleged that he might have considered the cession by France of her African colonies in preference to the surrender of Alsace-Lorraine. The supposed ground for his abandoning such an idea lay in the fact that the entire outlook of Prussian foreign policy was narrowly militaristic, and that Germany as a whole was far from ripe for the assumption of such a task. This, however, had little bearing on subsequent events; the purely military bias in all German statecraft was to persist. Fortified by the growing might and prosperity of the new German Empire, the dogma of the predominance of military power prevailed until it obscured all other views as to the correct methods of conducting any future war. Under these auspices the German Empire went to war in 1914. The Kaiser, as All Highest War Lord, took the field at the head of the German Armies, while in his Great Headquarters there were included several of the great office-holders of the German Empire, among them the Chief of the Naval Staff and the Foreign Minister. In theory the progress of the war on land was to dictate naval and foreign policy. The result of this entire attitude of mind on the naval conduct of the war may be gathered from Konter-Admiral Batsch's opinions which have appeared in the JOURNAL.¹

Not even the most skilfully administered modern State could be expected to withstand a convulsion of this nature. Soon it became obvious that the complex problems of international commerce and national economic life, let alone questions of sea warfare, could not be subordinated to the purely military point of view, that is to the discretion of military strategists. In addition, great difficulties of foreign policy arose out of the military occupation of foreign territory. Indeed, the very question of an invasion of Belgium had already involved political issues of the gravest kind. Fascinated by the vision of the military prize, strategists had overruled statesmen, with results that became obvious at the very instant that the German strategic plan announced itself to the world.

¹ See "Naval Strategy in the Great War: A German View," p. 738.

On the other hand, there is the spectacle of Great Britain entering on the Great War and directing the initial stages of the campaign with no very settled views as to the conduct of any major campaign beyond the current tenets of a democratic control of all activities of the State. Yet the machinery that was in existence, or soon extemporized, on the British side for the prosecution of the struggle, was to be called upon to actuate an organism far more delicate than any in Europe. There is little need to labour the point: one need but refer to the report of the Dardanelles Commission and to Field-Marshal Sir William Robertson's incisive analysis of the conduct of the war¹ to appreciate the results of British unpreparedness to wage a world-wide war. The consequence of this British lack of system may, in the end, have actually been more harmful than the German belief in the infallibility of the strategist, because the field for the strategic initiative of Britain was so infinitely greater than that which lay before the Germans. It is indeed amazing to find how far the close connexion between the conduct of war and the progress of civilized life had been overlooked in current military study before the Great War!²

We have, therefore, to ask ourselves, in view of the development of the present-day State, how to define the true place of the professional strategist in the conduct of a modern war. Sir F. Maurice, in his new book, alludes to the subject in the following terms:—"It is evident that we should not think of strategy as concerning armies alone, nor of naval and air strategy as apart from or unconnected with military strategy. We require a broader definition of strategy than that which is normally given. Nor, if we conceive it as being the art of employing power in war in the most effective way, will it suffice to think of it as being composed only of naval, military and air elements. War being in the realm of social activities and being a political act, statecraft is a most vital and important element in the development and employment of national power. It is difficult to divide precisely the spheres of policy and military strategy, the two often overlap, sometimes coincide. The effective distribution of man power and of supplies of material, are all elements of national power. This is clearly put in the Field Service Regulations:—'A nation must protect its vital interests. To do this it may have to impose its will upon another nation. It endeavours to achieve this object by employing part or all the means at its command. These means include diplomacy, economic influence applied in the form of financial and commercial restrictions, and, in the last resort, the use

¹ "Soldiers and Statesmen; 1914-1918."

² This connexion was admirably brought out by Colonel D. C. Cameron in, his lecture, "The Supply of Mechanized Forces in the Field." See JOURNAL R.U.S.I., November, 1929, p. 750.

of armed forces at sea, or on land or in the air. The armed forces are only one of several means employed ; in a struggle for national existence it is by simultaneous and combined use of all its means of persuasion that a nation achieves its object—the subjugation of the opponent's will.”

“Strategy should then, I suggest, be defined anew to meet our broadened views of what the conduct of war entails, as the art of applying national power to achieve the object of the war.”¹ General Maurice then goes on to show, with the help of a quotation from Sir W. Robertson's pages, the necessity for some co-ordinating authority to formulate our strategy, both in times of peace and of war. “In 1924,” he says, “a sub-committee of the Committee of Imperial Defence was formed, consisting of the First Sea Lord of the Admiralty, the Chief of the Imperial General Staff, and the Chief of the Air Staff. The function of this sub-committee is to furnish advice on defence policy as a whole, the three constituting as it were a super-Chief of a War Staff in Commission. The conception of a super-Chief of a War Staff, composed of the heads of the three Services, clearly leads us to a conception of strategy as requiring and comprising the co-operation of those Services.” But here, unfortunately, General Maurice turns away to consider the methods of purely military strategy.² Our new Field Service Regulations also appear to evade any more definite conclusions, as may be seen when they speak of the “unity of direction and control of the armed forces [of the State which] is to be exercised by the Ministers of State who have executive responsibility for the conduct of war, and who, with the assistance of the heads of the three Services, decide upon the plan of campaign and maintain and provide the necessary personnel and material. Close touch is preserved between the Chiefs of Staff, in order to secure co-ordination between the three Services and joint service and action in all matters relating to more than one Service.”

We do not seem to have yet arrived at the pith of the problem.

If, however, we turn to Captain Liddell Hart's new book, we find that this train of thought is more fully developed. He allots responsibility for the conduct of a war to those who direct “War Policy” or “Grand Strategy” and “Strategy.” It is proposed to examine the problem further on these lines.

II.—WAR POLICY, GRAND STRATEGY AND STRATEGY.

It is possible to define the three above expressions by analysing the various functions which they represent.

¹ “British Strategy,” p. 62.

² General Maurice has expressed himself more definitely in his earlier work, “Governments and War”; see particularly Chapter V.

First, there is the province of the statesman who has to consider the broad outlines of a war, to take stock of possible alliances and of the attitude of neutrals, to examine the economic repercussions of the struggle, and to study the problems arising out of the correct distribution of national man power and of national resources. In addition, there must fall to his lot the onerous task of supervising and of approving the activities of all the armed forces of the State, combined with the other national resources that are brought into action in order to achieve success.

Secondly, there is the translation into effect of the actual plans thus formulated for the combatant activities of the State, having due regard to the co-operation of the fighting Services one with another, whilst keeping these activities in harmony and combination with such economic, political and psychological methods of warfare as it has been decided to employ. With this task goes the parallel duty of advising the executive head of the State on all technical questions regarding the action of each of the national fighting Services. This function can only fall to the professional Chiefs of the three combatant Services.

Thirdly, there is the control and employment of the separate fighting Services, each individually, in the combatant operations authorized by the head of the State and elaborated by the professional Chiefs. This is the province of the commanders-in-chief of the armed forces on sea on land or in the air respectively:

We thus obtain a natural division of the aspects of the conduct of a war into:—War Policy, the function of the statesman; Grand Strategy, the sphere of the Chiefs of the combatant Services; Strategy, the province of the various commanders-in-chief.

To draw a clear-cut dividing line between War Policy and Strategy, that is Grand Strategy as defined above, may not always be easy. Still, it is obvious that there must be a sphere in which the statesman as representing the National Government must be supreme, just as there must be another sphere in which the statesman must allow the strategist to have a, relatively speaking, free hand. That much is abundantly clear from the pages of Sir William Robertson.

As Captain Liddell Hart rightly points out:—"To break down the distinction between strategy and policy would not matter much if the two functions were normally combined in the same person, as with a Frederick or a Napoleon. But as such soldier-rulers have always been rare, and became extinct in the XIXth century, the effect was insidiously harmful." He then proceeds to show how Moltke (the elder) defined strategy as "the practical adaptation of the means placed at a general's disposal to the attainment of the object in view." Consequently, the fighting man's responsibility is that of expending

most profitably to the interests of the higher war policy the force allotted to him within the theatre of operations allotted to him. With this opinion it is possible to agree in principle. The same writer continues to say that if the general "considers that the force allotted is inadequate for the task indicated, he is justified in pointing this out, and if his opinion is overruled he can refuse or resign the command, but he exceeds his rightful sphere if he attempts to dictate to the Government what measure of force should be placed at his disposal."

"On the other hand, the Government which formulates the policy and adapts it to conditions which often change as a war progresses, can rightly intervene in the strategy, not merely by replacing a commander in whom it has lost confidence, but by modifying his object according to the needs of its war policy. While it should not interfere with him in the handling of his tools, it should indicate clearly the nature of his task."¹

With all this, then, we concur entirely, so far as it concerns the broad distinction between "war policy" and "strategy," where the latter term includes both "grand strategy" and pure "strategy." It must be remembered that Captain Liddell Hart is here basing his discussion on the position of Moltke in 1870, when there was only a single campaign at issue, when no sea forces were involved, and when there were no serious exterior or economic issues at stake. To-day, in any major war, the situation is different. When several campaigns may be afoot simultaneously; when there are three fighting Services concerned in place of only one; when political, industrial and economic problems must bulk very large; then indeed there must be an intermediary and technical authority between the head of the State and his commanders-in-chief. This is the gist of General Maurice's thesis in his earlier book, "Governments and War." There he shows clearly and conclusively how successful became the interpolation of Halleck, as Chief-of-Staff, between Lincoln, the head of the State, and Grant, the Commander-in-Chief. This was not only an administrative convenience, but a distinct factor of success.²

We can, however, follow Captain Liddell Hart once more when he begins to distinguish between "grand strategy" and "strategy." "If practically synonymous with the policy which governs the conduct of war, as distinct from the permanent policy which formulates its object, the term 'grand strategy' serves to bring out the sense of 'policy in execution.' For the role of 'grand strategy' is to co-ordinate and direct all the resources of a nation towards the attainment of the

¹ "Decisive Wars of History"; p. 148.

² "Governments and War"; Chap. V.

political object of the war : the goal defined by national policy. Grand strategy should both calculate and develop the economic resources and man power of the nation in order to sustain the fighting services. So also with the moral resources, for to foster and fortify the will to win and to endure is as important as to possess the more concrete forms of power. And it should regulate the distribution of power between the several Services and between the Services and industry. Nor is this all, for fighting power is but one of the instruments of grand strategy. It should take account of and apply the power of financial pressure, diplomatic pressure, commercial pressure, and, not least, ethical pressure to weaken the opponent's will. A good cause is a sword as well as a buckler. Furthermore, while the horizon of strategy is bounded by the war, grand strategy looks beyond the war to the subsequent peace. It should not only combine the various instruments, but so regulate their use so as to avoid damage to the future state of peacefulness."

It would be difficult to define the realm of Grand Strategy more clearly.

It is to assist, on the emergency arising, His Majesty's Government in translating their policy into grand strategy that the newly-formed sub-committee of the Committee of Imperial Defence has been created. If we peruse Sir William Robertson's volumes, we can only conclude that there is ample scope for such a committee ; moreover that, should it ever come into active function in time of war, it would instantly require a secretariat, while it might very soon collect a permanent staff around itself. Who knows but what it might not shortly desire to amalgamate for its own purposes those scattered branches and create that joint Intelligence Service so earnestly desired by many who dealt with those matters during the late war ? In any case, the Chief of the Imperial General Staff, for one, would readily find the whole of his energies absorbed by his war-time advisory and executive duties regarding war policy and grand strategy, leaving the bulk of his more detailed military functions to be carried out by a deputy at the War Office. This, according to Sir William Robertson, was not very far from being the actual situation in 1916-18. The Chiefs of the Naval Staff and of the Air Staff could only follow his example.

As we work down the chain of responsibility in war, from the formulation of national policy, through the translation of policy into grand strategy, we come to the strategy of a commander-in-chief, whether he be sailor, soldier or airman. There we reach more familiar ground. Strategy, by its very derivation from the Greek, means no more than the "art, or skill, of the leader of an army." With that definition we may rest content, since enough of strategy, pure and simple, has been written in books of every scale and value.

We can now conclude that if the conduct of modern war be regarded from this tripartite aspect, many difficulties in the path of the student will be smoothed away. We begin to see how success in war can depend as much on sound plans of national policy, on resourcefulness in grand strategy, or on appropriate distribution of forces made in accordance with its dictates, as on the effect of direct naval or military action. The rôles of the statesman and strategist fall into their proper perspective. We begin to understand more clearly how the application of the combined instruments of warfare, that is economic, political and psychological weapons, can aid the fighting Services to an extent undreamed of in the Napoleonic age, or even during the war of 1870-71. The time has passed when even a distinct military success need necessarily entail the final victory of one or other belligerent. This, indeed, was the case at the end of the Great War, when the collapse of Germany was as much due to the war policy and grand strategy of the Allies as it was to the defeat of the German armies on the Western Front. As Captain Liddell Hart says:—"Among the fundamental causes of Germany's surrender the blockade is seen to assume larger and larger proportions as the fog of war disperses in the clearer light of these post-war years. Its existence is the surest answer to the question whether, but for the revolution, the German armies would have stood firm on their own frontiers. For even if the German people, roused to a supreme effort in the final defence of their own soil, could have held the allied armies at bay, the end could only have been postponed, because of the grip of sea power, Britain's historic weapon. But in hastening the surrender, in preventing a continuance of the war into 1919, military action ranks foremost."

That this should be so springs from the cause that the main object of war policy and grand strategy is, as our Field Service Regulations state, the subjugation of the enemy's will. This end can be greatly hastened, even if it be not attained by a combination of the various weapons which successful grand strategy can wield, as much as by the more orthodox road of victory by actual battle. But this last should complement the others.

III.—NATIONAL CHARACTERISTICS IN STRATEGY.

The influence of German ideas on European strategy has been very clearly marked from the days when the Teutonic hordes tore the old Roman Empire to pieces. Since the dawn of that era the theory of war that inspired European campaigns has, in most instances, been based on that same conception of brute force, in other words, the application of vastly superior weight of numbers or of armament, in order to obtain a decision in battle, regardless of other considerations. It was this basic

idea, in conjunction with the medieval ideal of ordeal by combat, that so long reduced the strategy of chivalry to such displays as the French dispositions at Poitiers and Agincourt. With a few brief interludes the same obsession appeared to predominate in continental warfare throughout the centuries. Frederick the Great, it is true, sought to adopt a more subtle strategy, one less extravagant in human material; but Frederick was cramped by the slenderness of his resources, and was forced to husband his man power. With the expansion of Prussia, and later of the German Empire, the cult of numbers gained ground—to the detriment of the art of leadership in war. No truer statement has been made by Captain Liddell Hart in his book than when speaking of the Great War he says:—"It is curious how the possession of a blank cheque on the bank of man power had so analogous an effect in 1807-14 and in 1914-18. And, curious, also, that in each case it was associated with the method of intense artillery bombardments. Is the explanation that lavish expenditure breeds extravagance, the mental antithesis of economy of force—to which surprise and mobility are the means?"¹ It is strange how the Napoleon of 1814 came nearest to rivalling the Bonaparte of 1796. Certain it is that the control of great numbers and of great warlike resources by a leader in war are usually noxious to the display of any high degree of strategic genius.

Together with this deep-seated Teutonic tendency to resort to main force in strategy, there came, after the Renaissance, the desire of all European sovereigns to increase their dominions by war. Aggrandizement of territory grew to be synonymous with an increase of man power available in war. So it went on, and it is not surprising that in 1866, and again in 1870, the ideal of German war policy should have been the knock-out blow achieved by a strategic encirclement obtained through a superiority of numbers. It has to be admitted that, if the great Schlieffen plan of 1914 was originally based on a strategic conception of a higher order, its execution still rested on that same axiom of the instant development of overwhelming numbers. The German has ever aspired to wield the hammer of Thor.

Let us now turn to consider the Latin or Mediterranean conception of strategy. It used to be said that the German ideal in strategy was to effect the earliest deployment of all available forces, as opposed to the French principle of the strategic advanced guard, the Napoleonic process embodied in the maxim:—"On s'engage partout, puis l'on voit." It is clear that this latter application of strategy rested on *finesse*, that is to say, we begin to find the significance of strategy in the true meaning of the word, "the art of the leader." That certainly was the

¹ "Decisive Wars"; p. 103.

Latin or Punic ideal of classical days. After a long lapse of time, after being lost under the weight of Teutonic and medieval influence, the idea reappeared in the conception of war entertained by the French and Italian leaders of the Cinquecento, more particularly among the greater *condottieri*, those commanders of mercenary bands who flourished in the internecine Italian wars of the period. It is obvious that none of them would incur unnecessary loss in battle, since their commands were equivalent to their business capital. Hence the revival of the idea of "strategy," the art of so leading troops as to ensure victory at the least possible cost—after the medieval interlude.

On studying the wars of the XVIIth and XVIIIth centuries, we see that French ideas of conducting war began to suffer from excessive formalism, which stifled any strategic genius that might have been shown at this period. Gross incompetence in high places was equally marked. It was thus left to Bonaparte to revive the true Latin genius for leadership in war.

After the close of the Napoleonic era a strategic coma fell upon French arms. This ended in the "belles positions militaires" of 1870. Aroused to a realization of better things, French military thinkers then sought to discover the essence of their past strategic successes. They seemed to have done so, when shortly before the Great War a blight descended upon their General Staff. The "Young Turk" party forced their new theories into execution. Seduced by a mirage of the Prussian victories of 1870, they introduced into the French strategy of 1914 a craving for a mad, headlong, offensive which reproduced most of the blunders of the German onslaught of 1870. Too late the French saw that they had sold their strategic birthright—for the disasters of Lorraine.

British methods of conducting war were evolved in accordance with Britain's peculiar geographical situation and political bent. Feudal society in England differed from that which existed on the Continent: so did an English army. A medieval English army was always small, while the men-at-arms, the rank and file of that period, were probably far more highly trained in the use of their weapons, and had enjoyed a greater degree of social independence. These peculiarities were to persist long. With such instruments much could be achieved, especially against faulty leadership. Cromwell, Marlborough, the XVIIIth century Admirals and Wellington, showed that with such men, even though other resources might be slender, they could achieve great results in war. But after Waterloo the fighting Services lapsed into somnolence. Strategy lost its rightful place in military thought. It was only after the rude shock of the South African War that a re-awakening took place.

That this re-awakening should have been followed by the "continentalizing" of British military thought was little short of a catastrophe. The *Entente Cordiale* of 1904 planted the seeds of a new trend of things. Then, in 1909, the higher military education of the Army became infected with a purely continental bias. Two years later, the French General Staff had, figuratively speaking, put the British Army into its pocket; that Army came to be spoken of, even in British military circles, as little better than a "detachment" of the French Army. General Maurice has rendered signal service in drawing attention to this sacrifice of every aspiration to conduct the Great War according to the methods that had proved the strength of British conduct of war in the past. What a stroke of irony that the *Entente* should have sprung from a naval fraternization, held in Portsmouth itself and conducted on the British side mainly by the Royal Navy!

Let us, however, now consider the question as to the point where racial or national characteristics begin to influence "strategy" in the sense which General Maurice implies by the title of his book. That racial qualities and national resources can and do very deeply affect tactics, may be admitted without further argument. In so far, then, that tactics may possibly, and even advantageously, influence strategy, we can also concede that point to General Maurice. But to qualify strategy as "British," where meaning pure strategy, appears a little more hazardous. Regarding the matter from an absolute point of view, it would be difficult to state that the strategy underlying Cromwell's and Marlborough's masterpieces, or Allenby's campaigns in Palestine, were very different from those of Hannibal or of Napoleon. The strategy of one brilliant land campaign conducted by a general of one nationality does not differ so materially from that adopted by another great leader who springs from another race. The methods adopted by one great master of war may vary from those preferred by another, but they will do so mainly because each knows the strength or weakness of his resources and the final effect he desires to produce. Thinkers on strategy and military historians have as yet failed to produce a set of "Principles of War" that differ according to the characteristics of the nation that has sought to apply them. Some misconception under this head is possible, and it may have arisen from the fact that the British conduct of military operations has, in the past, often profited from the possession of sea-power in order to select and then to shift a base of operations. The first manœuvre obviously requires no discussion. But the latter, it must be admitted, need not be confined to the possessor of a great navy. A change of base must be difficult, it is true, and it might not even be possible at all, in the case of a land power. But it is an operation that is freely mentioned by purely "continental" thinkers on military

strategy. Its execution is not a British prerogative. It is, moreover, practicable virtually in the case of smaller armies only.

We need to probe deeper. If, then, we examine British warfare as a whole, we do find that the more peculiarly "British" campaigns may be regarded as all those that in the past were carried out by the British Navy and Army in common; campaigns which, more often than not, were entrusted to small forces acting against the enemy's more distant "soft spots"; campaigns, moreover, that frequently had a commercial or a colonizing motive. Following on our previous argument, we must conclude that it is to the grand strategy which planned such undertakings, and to the war policy which was responsible for their entire conception, that the term "British" may more correctly be applied.

Well may Captain Liddell Hart state that the study of Grand Strategy is as yet a *terra incognita*!¹ It seems as though, at the present time, we are going far astray in regarding the war policy and the grand strategy of our past warfare from the more narrow standpoint of pure strategy. To achieve success in the conduct of modern war requires a breadth of vision and a sureness of touch in great national questions that cannot be obtained by approaching these matters from the standpoint of the commander-in-chief in the field. Just as it seems fallacious for the student to work upwards and to seek to apply to war policy and grand strategy those more narrow and cut-and-dried strategical "rules" that are primarily applicable to the actual conflict of armed forces, so it would be dangerous to attempt to direct national policy in war from the point of view of the sailor, the soldier or the airman alone. If the "Principles of War" are to apply to the whole of the national activities brought into play in modern war, that is to say, to our war policy and grand strategy, they must be defined in a far broader and more elastic form than might be found necessary to secure victory on the sea, on land and in the air. That, however, opens up a totally different field.

¹ "Decisive Wars"; p. 151.

THE FUTURE OF THE PROFESSION OF ARMS

BY COLONEL R. H. BEADON, C.B.E., late R.A.S.C.

IN the last number of the JOURNAL there appeared an article dealing with the possibilities of future war. The conclusions at which the author arrived were that "the world is very far from being secure from war, particularly if the problem be considered over a considerable expanse of years." Again: "apart from the constant chance of small wars against undeveloped races of the world and police duty on a scale verging on war, it is difficult to see how, when a first-class economic issue appears between two nations, hostilities can be avoided." Further, the writer deemed it "safe to prophesy that within a century war is not only possible but certain." These speculations must tend to re-assure members of the fighting Services who, in view of the trend of modern thought, may well be wondering whether there is any genuine future before the profession of arms. In any case, issues have been raised which it may not be unprofitable to pursue further, since there must be many to whom the immediate prospects of a useful and honourable career seem doubtful or at least nebulous.

A phrase constantly heard in these days is the "outlawry of war," and it would seem that, if this is to prove a reality, it must be followed, as a natural corollary, by the outlawry of the instruments by which war is conducted. To those who are striving to fit themselves mentally and physically for the most exacting form of service that a country can demand of its citizens, such tendencies, however idealistic in some respects, are scarcely stimulating. But it must be remembered that the aftermath of a great war inevitably brings a measure of reaction against things military. Our age and time is no exception to this general rule.

Nevertheless in one respect, at any rate, there is a remarkable variant from precedent. This is to be found in the zeal and in the progressive spirit which have animated the fighting Services since 1918. Not even the years subsequent to the war in South Africa produced a more lively fermentation of thought in the profession of arms. Such activity might readily be understood on the part of a defeated nation anxious to retrieve itself, or even among a victorious people seeing further definite and projected tasks ahead for which reform and expansion were needed. But neither condition obtains; yet energy has seldom been so marked.

It has been claimed that our Expeditionary Force of 1914 typified the acme of military training and efficiency. The same may be said

with equal confidence of the armament, equipment, training and leadership of the Army of to-day. Its only weakness is that which has been common to British armies of every age : it is low in numbers. In addition, the lessons and inventions of the late war have been digested and elaborated. Seekers after professional knowledge are remarkably alert. Competition to obtain entrance to the Staff Colleges and other media of higher education has never been more keen. Nowhere has there been stagnation.

So much enthusiasm is all the more remarkable because the circumstances under which it has been displayed have been the reverse of encouraging. The recent process, known as "axing," certainly had a depressing effect upon many desirous of making the Services their profession, just as it acted as a deterrent to parents wishing to place their sons therein. Subsequent reductions in many branches and establishments have caused further discouragement ; while the impetus of international peace movements might reasonably cause the thoughtful fighting man to wonder whether his proficiency would ever be required for any practical purpose. Yet in spite of all these and other factors, a spirit and a morale that is wholly admirable exists.

What, then, are the conditions which have produced so satisfactory a state of affairs ? It may be that the infusion of new blood during the war and the subsequent absorption of much of that blood has not been without effect. Those who commenced their careers with four years of war to their credit can be expected to possess an outlook somewhat different from those whose war experience was the culmination of long years of peace training and routine. Again, the stimulus given by the war to so many inventions cannot but have its influence on every field of human activity. Then, too, there is the question of education. With the strides made by the rank and file as the result of the adoption of a yet more thorough educational system, all officers must feel the need for maintaining that superior knowledge which is essential to leadership. Lastly, there is the fact that the fighting Services are now remunerated on some parity with other professions. No longer are its officers paid only "to work in the mornings." Whatever the reasons may be, there is no gainsaying the fact that a far higher standard of professional zeal and knowledge exists than was the case twenty years ago.

Comforting as these reflections may be, it is not with the present that we need be chiefly concerned. What should concern us is to ensure that the existing spirit and standard should be maintained. Fundamental to the whole question is the prospect of an ample supply of candidates for commissions. For when such supply ceases to be forthcoming it is certain that the germs of deterioration are already implanted.

In the Senior Service difficulties in this respect are not at present apparent, although the poor prospects of promotion for Lieutenant-Commanders and Commanders, and, later, of employment in the higher ranks, may come to affect the situation adversely. But there is good reason to hope that the pride with which the nation regards the Navy and the high prestige of that Service will endure. Britain is above all else a seafaring power and likely to remain so as long as men "go down to the sea in ships." Any diminution of the interest of her people in this direction is, we hope, far to seek. From a recruiting point of view, there seems little cause for anxiety, as far as the Navy is concerned.

No such conditions obtain in the Army. There are, it may be claimed, good and sufficient allurements to a military career; but they are not so clear to the general view. Already there exists a marked shortage of candidates for commissions, except for one or two branches of the Service. Where twenty years ago there were three or four candidates for every vacancy, there are now barely sufficient for the places offered.

As regards the Air Force, the position is naturally complicated by the apparent necessity for a system of short service commissions. Yet it is hardly an exaggeration to say that such a state of affairs can only operate under conditions of an over-crowded labour market; for it is unreasonable to suppose that the most desirable class of candidate will desire to offer himself to a Service where his future prospects are so nebulous, particularly in so specialised a profession as that of aviation. It is significant that there are none too many candidates for entry even into the Royal Air Force College at Cranwell, through which a reasonably permanent career is assured. At the same time it must be remembered that, as a Service, the Air Force is as yet comparatively in its infancy; also that with all its heroic beginnings, it lacks most of the prestige which only long tradition can bring. That it has a great future none can doubt. Difficulties inherent in the building of a new organization will, in due course, be overcome, while it is conceivable that the extension of civil aviation will provide increasing scope for flying men in the same way that the commercial fleet of Great Britain built up the predominance of the Royal Navy.

But even so, the symptoms of a shortage of candidates for two out of the three fighting Services require some further diagnosis. With all the triumphs of our modern civilization, it can scarcely be disputed that a growth of materialism has accrued. That the profession of arms may not be deemed to hold out "glittering prizes" sufficiently alluring to tempt modern youth is another factor that cannot be ignored. In any case, the days are gone when a British officer, questioned by some

foreign colleague as to his pay, would reply: "Oh, I don't know! We pay for the honour of serving."

Possibly, too, there exists to-day some lack of that spirit of enterprise and adventure which so characterized certain phases of our national history; this is undoubtedly reflected in the disinclination for emigration. We must hope that this is only a passing phase. Then we may see a change in the present outlook which, so far as the Army is concerned, seems typified by the unpopularity of service in India to-day, being in direct contrast to the competition that existed a few decades ago for commissions in the Indian Army. Lastly, the glamour and romance which surrounded war and served to overlay many of its horrors are in rapid process of disappearing.

So far, then, we must accept that, while real enthusiasm and a spirit of progress permeate the Services at the present time, the opportunities for them to show their worth in the immediate future, at any rate, are unlikely to be of a nature to stimulate popular interest and support. In other words, we must not expect the fighting Services to be such objects of national pride as they were before and during the late war; they may even come to be regarded as existing on a sort of grudging sufferance and as a concession to a tradition which seems somewhat archaic. Nevertheless, as has been shown by the author of the paper already alluded to, these conditions should be regarded as being more apparent than real, and we should beware of drawing hasty conclusions from what may well prove to be but a passing phase.

An epoch somewhat similar to that which succeeded the Napoleonic wars is now upon us, and during this epoch it may be difficult to maintain the requisite high standard of efficiency within the Services themselves. But this only calls for greater effort and enthusiasm to counteract outside apathy. Herein there lies a special scope for the exercise of all our natural gifts. In seeking inspiration to keep alight the torch of learning and to preserve our military traditions, we need not restrict our field either to the merely theoretical aspects of war in the abstract, or to the contemplation of some definite future "great war," too nebulous to seem real. For Great Britain with her varied responsibilities, "glorified police work" is liable to develop into a "small war" with little or no warning. The effect of the last great war has been to increase these responsibilities, and already there has been ample evidence that unforeseen emergencies are likely to arise and make urgent and immediate claims on the Services. These claims, alone, provide ample grounds for maintaining readiness and efficiency at a high standard. Here, then, is a clear opening for those to whom an active and adventurous career still

appeals. Added to this, the Services continue to offer exceptional opportunities for enlarging a man's outlook by taking him to new places and enabling him to make contact with other races and civilizations.

We have admitted that the possibilities of a "major war" seem non-existent as far as our own, and perhaps even the succeeding, generation is concerned. But even so, it is still our duty to hand on to our successors that store of knowledge and experience which we ourselves have purchased at so great a cost. In spite of present moods, any prophecy as to the future is rash, even for a comparatively short time ahead. Any attempt to legislate for the temper of a man a century or less ahead would seem to savour of insanity. If we now abandon the practice and exercise of military science we may compromise and even betray the future of our civilization. Because it is anticipated that there will be no occasion to use the machine for an indefinite period, it does not follow that it can therefore be allowed to fall into such disrepair as will find it beyond recovery when it is needed. Nor can great organizations like the fighting Services stand still. They must either advance or deteriorate. There must be continual growth and methodical progress to keep them abreast of modern developments. Already we know that it will not suffice to keep them at the standard reached by the conclusion of the Great War. We cannot have quantity; indeed, we do not need it. But we can and must have such quality that it will be able to leaven the whole mass should the need arise. Towards the attainment of that quality, as much physical and mental virility is needed as ever before.

The qualifications required of an officer are indeed likely to differ somewhat from what they have been in the past. Ability to lead and train will still be paramount, even if in a somewhat different form. Tactical command will no longer be exercised by personal and continuous contact of man with man. For example, in the Army, when we thought of cavalry we thought of the horse; when we thought of artillery we thought of the gun; and when we thought of infantry we thought of the man rather than of his weapon. In the past it would have been no misapplication of terms to have said that the infantry *was* the Army, since all technical arms were auxiliaries. To-day these conditions no longer obtain, for every part and parcel of our military organization is becoming technical.

This transformation of the Army from brawn to iron resembles, in its larger aspects, that of the Navy from sail to steam. Like the latter, too, it has been gradual, even though it was greatly speeded up by the war. The experience of the sister Service is encouraging, for naval personnel has certainly not deteriorated since wooden ships gave way to floating machines. Gallantry, skill and enterprise are still essential,

and although this is an age of ever increasing mechanization, the need for a lively spirit of initiative is more pronounced than ever. The human element is still the vital one, and humanity is wonderfully adaptable. Before 1914 it was often said that war would be so horrible and devastating that man would be unable to support it. Yet, under circumstances far more deadly than were ever conceived, our generation, fighting with and against more dreadful engines of destruction than had ever been used before, proved itself equal in valour and endurance to those of our ancestors who fought under Marlborough and Wellington.

Those who forecast that the Army of the future will be dominated by scientific and technical knowledge, and that the warrior will be replaced by some pale-faced chemist or anæmic mechanic, are running counter to all past experience. The battle is ever to the strong ; virility and physical fitness, if less obvious necessities, will be none the less fundamental assets. The tendency for machine craft to supersede hand craft does not imply that basic military virtues are no longer required. Because the fighting man must now possess more knowledge, it does not mean that he can dispense with his former physical and psychological attributes.

To sum up : the world has not yet attained a condition of such universal civilization that minor wars are no longer probable ; but such wars call for forces which are essentially professional rather than national. As regards a major war, the most we can say is that it is unlikely, if not inconceivable, in the immediate future ; but beyond that we cannot reasonably go. Who, therefore, would say that within such limitations there is not plenty of scope for those who desire to serve their country in the fighting Services ? Foch saw no active service until he was sixty-four ; he may often have wondered whether the zeal that inspired his whole professional career would ever reach fruition in practice. And even if it had not done so, it was in itself none the less virtuous and valuable to the cause of his country.

All these things considered, then, it does not appear that there is any cause to be pessimistic. Cuts, prunings, readjustments, reorganization and even comprehensive changes must come, as in the course of nature. To the general policy and trend of events, navies and armies must conform. But even with no wars in vision, there is yet honourable, useful, and indeed essential work to be accomplished in the ancient profession of arms.

THE ATTACK OF DAYLIGHT BOMBING FORMATIONS

By AIR COMMODORE C. R. SAMSON, C.M.G., D.S.O., A.F.C.

THE problem of how to attack bombing formations is obviously a very important one, especially in connection with Home Defence. Yet there are very few actual data to guide us in its solution, and remarkably few practical trials have been carried out of late years. But, as the result of experiments with which the present writer was closely associated over a period of two years, certain methods were devised.

Before proceeding any further, however, it is necessary to note some general aspects of the subject. Firstly, in the present state of the Royal Air Force, pilots are constantly being moved from Squadron to Squadron; thus they never settle down for any length of time. Some of the pilots have a great deal of experience, others have none. Flights are commanded in many instances by pilots with only eighteen months' service. The same thing will, of course, happen in war time after the first few days of fighting owing to casualties and the rapid expansion of the Service. Therefore our combat tactics must be simple in order that newly joined pilots can rapidly become useful members of a Squadron.

Then it must be borne in mind that the present day single-seater fighter (S.S.F.) provides a very obstructed arc of vision for the pilot. This must be taken into account when devising tactics demanding close formation work. Again, our combat tactics must be based on close order flying, otherwise our assaults will tend to be indecisive and our squadrons will split up. The provision of a free field of fire for each aeroplane and lack of mutual interference is highly important. The size of the formation and sub-formation that can be handled is another factor. Lastly, intercommunication between the leader, sub-leader and other pilots needs consideration.

Up to date, our tactics have been forced to follow the design of our S.S.F.; surely this is quite wrong. The correct method would seem to be to design the fighter so that it can comply with the main requirements of our tactics. The ideal situation is reached when the weapon,

i.e., the fighter, is constructed and armed so as to provide the maximum efficiency in the best form of assault.

When we come to consider the bombing formation that has to be attacked, it is as well to proceed on the assumption that, aeroplane for aeroplane, the bomber has greater gun power; also, individually, their speed may be nearly as high as the fighter. The speed of a formation, however, is a good deal lower than that of a single aeroplane, and the larger the formation the slower will be its speed. It is possible for aeroplanes of inferior speed to attack those of superior speed, but they must approach from a direction before the beam. The greater the speed superiority of the attacker, the larger the number of assaults that can be delivered in a certain period. Speed superiority also permits of the attackers getting to close quarters from a rearward position.

Certain gunnery features of bombers merit consideration. It is a well-known fact that it takes a considerable time to train a gunlayer of average ability to handle his weapon properly when standing up in the full blast of the slip stream. The rear top gunlayer in a bomber is generally so exposed when he is standing up that in many cases he will be a negligible factor. This means that an attack from below will probably suffer less from gunfire than an attack from above. In the latter case the gunlayer of the bomber is crouched down in a sheltered position, well braced up, and therefore able to produce well-aimed fire. The provision of gun turrets will, of course, greatly improve the gunlayer's efficiency.

The nature of the formation used by the bombers must to a certain degree affect our tactics. We must also bear in mind that the armament of the bombers may vary according to their position in the formation. But these features should not prevent us from following certain main lines; in any case, it is evident that we cannot have a different scheme of attack to deal with every formation of the enemy, for the training of our pilots, under the present system, precludes efficiency in more than two or three methods of attack. Special squadrons with pilots of high individual capability, who have been together for a long time, doubtless will be able to assimilate quickly any new method; but the average squadron would undoubtedly fail if too much were asked of it.

The size of the bombing formation is another factor. I, personally, hold the view that the bigger the formation the easier it is to attack it, for the following reasons. To begin with, there is more battle room for our fighter Squadron; secondly, the enemy is slower and less manœuvrable; thirdly, his leader is more out of touch with what is happening to his flank aeroplanes.

Now, our tactics must be based on a standard system. In this, the Flight is the lowest unit. So many Flights make the Squadron. When two or more Squadrons are present they work together, synchronising their assaults. Each Flight acts as cover for the other Flights. Each Squadron acts as cover for the other Squadron. Every aeroplane in the whole force is providing and receiving cover. In fact the principle is to attack and make off in reciprocating cover. In other words, a fighter Squadron may be likened to a boxer with three or four hands, each hand being a Flight. In the light of experience there can be little doubt that the correct number of aeroplanes in a fighter Flight is three. Properly trained, they can work practically as one aeroplane; their manoeuvres are rapid, and they can produce a heavy and well-aimed fire. Any greater number would only reduce the manoeuvrability of the unit. In the air, the Squadron should consist of four Flights, thus providing a reinforcement by throwing in the fourth Flight to replace casualties in the first assault.

The correct procedure must undoubtedly be for the fighter to endeavour to secure fire superiority against a portion of the bombers' formation, with the object of destroying the formation in detail. To obtain this we must attempt to get practically simultaneous fire from each aeroplane of each Flight against one bomber. It is impossible in practice to obtain simultaneous fire from three aeroplanes on one but we can attain something approaching it. Therefore we must attack with each Flight simultaneously on certain bombers, preferably with a view to facility of manoeuvre, selecting the wing bombers.

In each Flight the aeroplanes attack, one or two from above, and one from below; or vice versa; and practically simultaneously. This method provides each fighter with sufficient space and time for a well-aimed burst of fire. Well-aimed fire is all important. At present, until further improvements in guns and sights are made, deflection shooting must not be attempted. Against certain types of aeroplanes and various formations a Flight may attack two bombers at once, but as a general rule, only one is attacked.

Under this system, then, we have the whole Squadron of nine aeroplanes attacking three bombers. This seems, on the face of it, a wasteful procedure; but it will be found that, in practice, we are following sound principles, for we are attempting to destroy the enemy in detail, and concentrating a superior force against an inferior one. Also by this method we are maintaining the cohesion of our Flights and Squadron, and thus preventing the combat from degenerating into an indiscriminate *mêlée*.

After each assault, the Flights break off, reform, and repeat the attack without loss of time. The number of attacks are, of course, governed by the speed superiority of the fighters, ammunition supply and fuel capacity. One advantage of this type of attack is that it prevents waste of ammunition at long range, which is liable to happen with inexperienced pilots.

Without going too closely into the actual details of the assault it seems that the fourth Flight can be used either to attack with the other three Flights or to act as follows :

- (1) Feint attack on enemy Leader ;
- (2) Provide cover in case the enemy are escorted ;
- (3) Deal with aeroplanes broken off from the main formation ;
- (4) Replace casualties in the Flights.

Having dealt briefly with the nature of the attack, it is as well to consider from which direction it should be launched. There can be no doubt but that, whenever possible, it should be from a position above and ahead of the enemy. Unless we have enormous speed superiority, attack from astern is fatal, as we then have a slow approach generally ending in a flat dive, coupled with exposure to maximum fire. From ahead, the fighters have the advantage of initiative, air room, and air speed ; also, as a general rule, they will be less exposed to the bombers' fire, because the fixed front guns of the bombers cannot bear on the fighters unless the bombers carry out complicated manœuvres. Added to this, is the advantage of the fighters being between the bombers and their objective : either the target or their home.

Another factor affecting the problem, but which it is not proposed to discuss in detail, is the natural reluctance of the bombers to manœuvre, because every manœuvre will delay their mission, and also tend to break up their formation. The advantages of attacking the flank bombers first are that in this area is found the least fire, as the opposite flank are at too long range for effective shooting. Again, the whole fire system of the bombers may be put out of action, as each fighter Flight is engaging simultaneously, and human nature will make those bombers which are attacked fire at the actual aeroplanes that are attacking them to the neglect of those that are attacking their fellows.

In conclusion, it may be remarked that any attack which may be devised for fighters against bombing formations appears simple enough on paper, or when worked out on a blackboard ; yet, when it is tried in the air, many difficulties are soon discovered. It is only by constant experiment and practice that success can be assured.

BLIND FLYING

By CAPTAIN G. MACLEOD ROSS, M.C., M.Eng., A.M.Inst.C.E., R.E.

ONE of the handicaps from which aeroplane operation suffers is the inability to fly with reasonable safety by night or in fog or low visibility. As a result of this limitation the twenty-four hour range of the aeroplane is considerably reduced, and whereas a flight of 600 to 900 miles in twenty-four hours is to-day considered the normal maximum, Sir Sefton Brancker has estimated¹ that, were it possible to fly under all conditions of low visibility, flights of 1,800 miles in that time should be commercially possible.

The results of tests and research which have been prosecuted for the past eleven months, and which have been financed by the Daniel Guggenheim Fund for the Promotion of Aeronautics, were recently published. It is reported that a complete flight has been made in a plane with the cockpit entirely covered in by an opaque canvas cover. During this trial the plane took off, flew a course including two 180 degree turns, and landed again on practically the same spot from which it started.

The pilot was Lieutenant J. H. Doolittle, and the experimental flight was carried out from Mitchel Field, Long Island, New York. Those responsible for the research include Professor W. Brown, of the Massachusetts Institute of Technology, Lieutenant Kelsey, the assistant pilot, the Bureau of Standards and a number of instrument making firms.

The installation which enabled this to be done, consisted of a special altimeter calibrated in ten foot units, a standard altimeter, a magnetic compass, an earth inductor compass, an air speed indicator, a turn and bank indicator, and a rate of climb meter. In addition, there were a Sperry artificial horizon, chronometer, motometer, ammeter and voltmeter, and the special radio beacon finder.

At first sight it has to be admitted that this array of instruments is formidable, but the main additions to the normal outfit were the new

¹ R.U.S.I. JOURNAL, November, 1929.

barometric altimeter, by which the distance of the plane from the ground could be measured within a few feet, and which is considerably more sensitive than the normal instrument used for height recording; the turn and bank indicator, which takes the form of a directional gyroscope and guides the pilot on a blind turn; the artificial horizon, which has been developed by the Sperry Gyroscope Company, and is gyroscopic in principle and much more sensitive than the usual banking indicator. In this latter, there is represented a small aeroplane, behind which is a moving horizon. These two correspond respectively to the plane in flight and to the natural horizon. Coincidence of plane and artificial horizon indicates that the plane is flying on an even keel.

Finally, there is the radio directional beam. This is located near the ground in the centre of the aerodrome, so that the pilot may fly right over it. The receiver, fitted in the plane, consists of two vibrating reeds which are in tune with and actuated by the directional beam.

The pilot, by steering his plane so that maximum vibration occurs, is guided along the line of the beam, and thus enabled to land in the correct direction for the prevailing wind conditions, etc.

The beam apparatus used in these experiments was produced at a cost of £400, but quantity production will, of course, reduce this figure. By these means it has been found possible to create an artificial ceiling where no ceiling exists.

The principle of the "leader cable," which is used to lead ships into ports and harbours in fog, is being exploited in competition with the radio beacon, with a view to producing a guiding device for aeroplanes. The leader cable will inform the pilot of a plane flying along its length whether he be on or off his course, and by varying the frequency at required locations, it will convey to him information regarding change in contour and altitude in the country traversed.

Similarly, much progress is being made in respect of visual signal for use at night under relatively clear conditions, and the Neon Beacon, recently installed at Croydon Aerodrome, is an example of modern practice in this direction. This beacon shows a red light and has a candle power of 6,080, and a working range of forty-five miles, although it has been seen under favourable conditions over eighty miles away.

At the Grosse Ile Airport in the Detroit River, a series of lights, 100 feet apart, set flush with the ground, and working on the principle of the well-known electric news sign, has been installed. The lights are controlled by a switch operated by a wind vane which switches on the particular series of lights which are parallel with the wind prevailing at

the instant, and so not only is the pilot informed of the direction of the wind but he is provided with a lighted path on which he may land.

The General Electric Company of America is reported to be engaged on the development of a radio echo altimeter, working on the lines of that evolved for depth finding at sea.

In the several directions enumerated great advances are being made, and it is no exaggeration to say that the time is not far removed when aeroplane operation under any visibility conditions will be made safer than that of ships at sea, railways, or other older forms of transport.

MODERN MILITARY BRIDGING

BY COLONEL A. BROUGH, C.M.G., C.B.E., D.S.O.

On Wednesday, 20th November, 1929, at 3 p.m.

MAJOR-GENERAL P. G. GRANT, C.B., C.M.G., in the Chair.

THE CHAIRMAN introduced the Lecturer, adding that he was engaged at the War Office on all research and experimental work in connection with military bridging other than railway bridging.

LECTURE.

INTRODUCTORY.

THE advent of the armoured fighting vehicle and of mechanized transport has clearly increased to a serious degree the complexity of the problems of providing suitable bridging equipment for an Army in the field. We do not stand quite alone in this respect, for the rapid increase in the weights of road vehicles is causing a certain amount of perturbation in the minds of our brother engineers in the civil world.

I will, with the permission of the Institute of Transport and with my profound acknowledgments to the author, quote an extract from a brilliant lecture delivered by Major E. G. E. Beaumont on the subject of "Influences affecting Transport Development." He says:—

"To the superficial observer it does seem incomprehensible that at intervals along important highways upon which huge sums of public money have been expended, there should remain privately owned bridges and roadways over them incapable of carrying the vehicle loads sanctioned by the old standing Acts and Orders. It is yet another instance of disproportionate development never contemplated and always about to be disposed of with little further delay. Meanwhile these weak links in the highway chain remain with owners and local authorities only too ready in numerous cases to take action immediately their powers and responsibilities are re-defined. The divergence of opinion regarding the strength and carrying capacity of some of these bridges and its conflict with long permitted road usage is sometimes so pronounced as to excite

humour were the subject not so serious. Cases are known in which cautionary official notices of the bridge owners decree that the limit of vehicle weight permitted is four tons, for which the bridge may have been constructed over half a century ago. Present day investigations on behalf of the road users may, however, show that, apart from ordinary age weakening effects, there is such an accumulated added thickness and weight of road bed that there remains no ascertainable traffic carrying capacity at all. The knowledge that the same bridge has regularly been traversed for years past, and at present, by vehicles representing gross loads of not less than 12 tons leaves the vehicle owners in a rather uncertain frame of mind and contemplating the merits of obedience and prudence. Providentially there has not yet been an occurrence of road bridge failure with serious results, but present day circumstances justify the conclusion that we have been running grave risks and working to perilously small safety margins."

I may add that in the Army we have to work to small safety margins in dealing with military bridges ; but we know what these margins are.

These remarks need not deter the motoring public returning from holiday in the heaviest of limousines at any but their usual speeds. They will not, however, I hope, fail to draw attention to the fact that, even in this highly civilized country and in these piping times of peace, it cannot be taken for granted that even on first class roads, all bridges are capable of carrying the heaviest of loads now obtaining ; further, that it is not sufficient to assume that because a road is marked on a map all vehicles may proceed unscathed along it.

CIVIL AND MILITARY BRIDGING CONDITIONS.

Military engineers are watching all developments in civil road and railway bridging with intense interest since this provides us with a fund of information regarding designs, materials and methods of erection. More than that, I think we may assume that our brother engineers in civil life would come forward in any future war, as they did in the last, to work for us in any great emergency. It will be remembered that in the Great War, Captain Hopkins and Professor Inglis devised special girders for our use ; while they and others offered us all their experience and resource to assist us in building the more permanent types of bridges required on our lines of communication. A brilliant example of this type of work that is now being done by our civilian colleagues may be seen in the new temporary Waterloo Bridge, which was completed with a skill and celerity that would have excited profound admiration in any country but England. I need say no more about this type of construction.

I will now turn to military bridging pure and simple. Where the military problem of bridging in the battle zone differs radically from that prevalent in peace time is in the question of limitations. Moreover, our own particular problem differs from that of most other nations in that we may be called upon to fight in almost any part of the world. We are definitely limited by the fact that the component parts of our bridging equipment must be capable of being easily transported—when necessary across country—easily handled, and assembled in bridge, if need be even under fire, with a reasonable degree of celerity. All these factors place a limit to the expansion of military bridging equipment to carry increased loading. Accordingly we are limited, on the one hand, by the physical capacity of the man, on the other, by the weight and strength of materials, while choice in the latter case is affected by the possibilities of supply in war. Then there is the last factor, a serious one,—the time factor. It follows that all visions of using complicated mechanical plant to assist in bridging under battle conditions may be dismissed. A few mechanical tools and winding gear on lorries may alone be available.

VARIOUS TYPES OF MILITARY BRIDGES.

I will omit all reference to those earlier types of military bridging which, owing to the relatively light loads they are capable of carrying, have been superseded or are earning a well merited rest in the list of expedients that, in company with one or two more modern ideas, now figure with dignity in the appropriate Manual. Rather I will proceed to discuss our modern problem under two aspects, viz., floating bridging and girder bridging, accepting as a principle that a crossing of an obstacle will normally be made by first forming a bridge head on the far side under cover of which the final crossing may be completed.

Taking *Floating Bridges* first, I will begin with our lightest type of equipment: *The Infantry Assault Bridge*, a type of bridge which packs easily for transport, is easily carried and laid in bridge, is very useful for crossing of rivers of moderate width and current. The Kapok float cannot be sunk by rifle fire, and it has also been used for making a raft for ferrying the very lightest types of vehicle across streams. But in order to obtain sufficient floatation to carry even the lightest vehicle, a relatively large number of Kapok floats are required, and the resulting raft is a clumsy affair, so this method cannot be regarded as anything but abnormal.

Next we come to *The Pontoon Bridge Equipment*. The development of this type was begun shortly after the Great War and the investigations which led up to the present design covered a very wide field. For instance, the shape of the pontoon was determined after towing a series of models

in a laboratory water tank. Next, full size models were towed out at sea in rough weather with a weighted towing rope, representing the drag of an anchor cable, and a type was selected that stood up to a very severe test. The details of this design were only determined after advice had been obtained from every type of expert from scientists at Cambridge University and the National Physical Laboratory to boat builders. Similar investigations were carried out with regard to materials, and it was only after exhaustive trials that our present types were adopted.

The construction of the pontoon itself is the following. Its skin is made of consuta wood, a species of ply-wood, which is not only very light and tough, but wears well even under adverse climatic conditions. It has also the great advantage of being easily repairable, and though bullets and shell splinters will penetrate it, the damage is readily repaired *in situ* and the pontoon kept afloat.

I have rather elaborated this story to show that the development of our equipment is not the result of merely happy or casual inspiration, but the result of patient investigation in conjunction with experts working with the troops themselves.

This equipment can be formed up in bridge in four different ways :—

- (i) *Light Bridge*.—One pontoon is used for each pier. It takes, however, nearly as long to construct as a medium bridge, since the same roadway is required ; so the use of this light bridge should be reserved for special cases ;
- (ii) *Medium Bridge*.—Two pontoons, coupled stern to stern, are used for each pier ;
- (iii) *Heavy Bridge*.—Four pontoons are used for each pier, with an increased number of road bearers ;
- (iv) *Super-Heavy Bridge*.—Six pontoons are used for each pier, with larger road bearers than in the previous types.

It is hoped that these types of bridges will be capable of dealing with all vehicles, present and future, which will accompany an army in the field.

In addition, a new type of trestle is now undergoing trial. It is rather lighter than the existing type, but will carry a load twice as great, a fact which greatly simplifies the task of laying trestles to take the heaviest loads.

To succeed in forming bridges over rivers with rapid currents, motor-boats are a necessity for laying anchors and pushing pontoons into place. Two types of motor-boat are now under trial, and a third type has been evolved to meet our requirements.

Pontoon equipment is carried in the field in a *Pontoon Bridge Park*, consisting of fifty pontoons, with a proportion of trestles and other equipment. When loaded for transport this unit constitutes a column approximately one mile long. If laid in heavy bridge, this equipment will, under the best conditions, span 525 feet, that is to say the length of such a bridge in the water is about one-tenth of its length in column on land.

A Pontoon Bridge Park is maintained as a corps unit, the object being to hold this equipment in reserve until required for a definite bridging operation. It is evident, therefore, that when bridging is to be undertaken, the pontoon equipment must be sent to the front on a very carefully organized plan, and it must be delivered right up at the bridge site. It is also evident that once a pontoon bridge has been laid—probably in heavy bridge—it may be required to remain in position for several months, that is, until replaced by some more permanent type of bridge. This means that maintenance parties and spare equipment will be required for each bridge or group of bridges.

There is now undergoing trial a type of *Folding Boat Bridge Equipment*, which is lighter than our pontoon equipment, also less conspicuous, more easily handled and considerably cheaper. The object of this type is to provide a means whereby the weapons designed for the close support of infantry may be sent across a river at the same time as, or very closely behind, the assaulting infantry, so that a definite bridge head may be formed to cover the subsequent crossing. It is hopeless to expect the heavier types of bridge to be erected under direct rifle and machine gun fire.

This boat folds up very nearly flat; when opened it is rowed or propelled by an outboard motor, so that it can, if need be, ferry infantry across a river. Formed up in a raft, it will enable a vehicle ferry to be put into operation with rapidity. Lastly, with the help of a special type of roadway, a bridge for light loads can be formed.

A similar but much smaller boat for reconnaissance purposes is undergoing trial. This is designed also to tow a rope across a river and possibly to put down a smoke screen.

Finally, as regards *Girder Bridges*, we have in existence the Service Box Girder Bridge. The girder is rectangular in section and is built up of short lengths (8 feet long), which are pin-connected in the field. The girders can be laid two, three or four, side by side. With suitable decking, they will carry all medium and heavy loads over a span of 96 feet.

It is felt, however, that in this case we are once more faced with much the same problem as with the pontoon equipment, and that we

are in need of a lighter girder in order to give greater mobility and freedom of action to advanced troops. Experiments are now being carried out with a light type of box girder designed to carry light to medium loads over spans up to 60 feet. Its use is not confined to spans of 60 feet only, as it can be supported for greater spans on the Service trestles or trestles made of timber or of tubular steel scaffolding.

CONCLUSION.

I hope I have said enough to indicate that, although we may not have achieved final solutions of the various problems connected with the production of bridging equipment, we have gone a long way towards attaining this desired result. All our efforts are now seriously concentrated on the production of equipment which will be of maximum utility to units in the field, without ever forgetting our long suffering infantry.

It has been stated over and over again that rivers have never proved a real obstacle to troops in the field in the past. There is no reason to suppose they will form any more serious obstacle to them in the future. But it is quite clear that the numbers of men and the amount of material required to make and maintain bridges capable of carrying modern military vehicles will greatly exceed anything hitherto contemplated, while it will demand a considerable degree of skill in preparation to ensure that men and material arrive at the selected places in proper time.

DISCUSSION.

CAPTAIN C. F. WEBB (Manchester Regiment) stated that during the past three years he had had some experience of the new assault bridges and considered them very successful. But on several occasions, when dawn attacks were carried out, it was necessary to reconnoitre and assemble the bridge close to the enemy under cover of darkness. In the heat of battle, under heavy fire, he thought it would be rather difficult to put the construction together. Under war conditions he fancied some more easy assembly of joints would be necessary, and that if a new kind of pin could be supplied for assembling these assault bridges, the troops would have more confidence in them.

CAPTAIN SIR EDWARD HEADLAM, C.S.I., C.M.G., D.S.O., wished to speak as an old naval transport officer. He agreed with the lecturer that the British Empire must be prepared for war in any part of the world. But a fact that had struck him even more was the invariable difficulty to get the bridging material to the place wanted.

"I think that in all matters which involve immense tonnage and large space in carrying, it is very important that the War Office, the Admiralty, and the Board of Trade who are responsible for military transport by sea, should co-operate, so that the military requirements in the field may be met by the shipping that is available. We have to remember that in trying to meet requirements, both naval and military, in the field, that is, to convey the troops, to furnish the necessary munitions and food, as well as an immense quantity of impedimenta,

it is easy to forget the bridges, also what I should include as a necessary accessory, any piers required for landing, and still more easy to forget, the necessary means for transporting and lifting such bulky structures.

COLONEL BROUGH, in reply, said: The question raised by Captain Webb about the pin in the assault bridge has been already recognised as one of the difficulties in the existing equipment, and a new type of pin connection is out on trial already; this, I hope, will give the desired result.

The point made by Sir Edward Headlam, lies outside my sphere, because I am only concerned about military bridging. I understand, however, that machinery for co-ordinating the efforts of all three services in the case of war exists.

THE CHAIRMAN:

MAJOR-GENERAL P. G. GRANT: All who were familiar with the state of our bridging equipment at the end of the Great War will agree that much progress has been made during the past ten years. We ended the war with an assault bridge improvised from petrol tins and cork floats, and now we have the kapok equipment which, although capable of being improved, generally speaking, already possesses the confidence of our infantry.

Our intermediate bridge is perhaps not quite so far advanced, the explanation being that for a considerable time after the war it was not quite clear that an intermediate type of bridge was wanted. In view, however, of the introduction of close support weapons, it was decided by the General Staff that in order to consolidate the bridge head it was necessary to have such a type of bridge. As the lecturer has shown, we are well on the way towards getting a suitable type, made of cheap material, easily workable. It is also a bridge that may be used extensively.

With regard to pontoon equipment, we ended the war with an equipment designed for horse-drawn artillery and transport, magnificent in its time, but quite obsolete by the end of the war. Now we have consuta wood equipment, which when introduced was not regarded altogether with favour by the Engineers. It was thought to be clumsy and heavy, and that bridging could not be carried out quickly by its means. But as time has gone on, with successive training seasons, our Engineers have learnt to handle it with speed, and they are now thoroughly satisfied with it. It, also, needs minor improvements, and as these come to light they are attended to.

There is, however, one point. I do not think it has actually been used in bridge in rapidly flowing rivers, like the Swat River on the frontier of India, or the Piave in Italy.

COLONEL BROUGH: We calculated it to stand 6 knots.

THE CHAIRMAN: Yes, it will stand the current. But the question is whether the men can work it; it has not yet been tried out.

As regards steel bridges, in the Great War we had those fine bridges designed by Professor Inglis and Captain Hopkins. As bridges they were excellent, but they suffered from a good many military disadvantages. For one thing they were very prominent, for another they were made up of a very large number of pieces, bolts, and so forth which were liable to be lost. Now we have the box girder bridge the sections of which are put together with pins, and the resulting girders can be laid in twos, fours and sixes, side by side, according to the load.

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In my opinion that is about as nearly an ideal for a military bridge as one could desire.

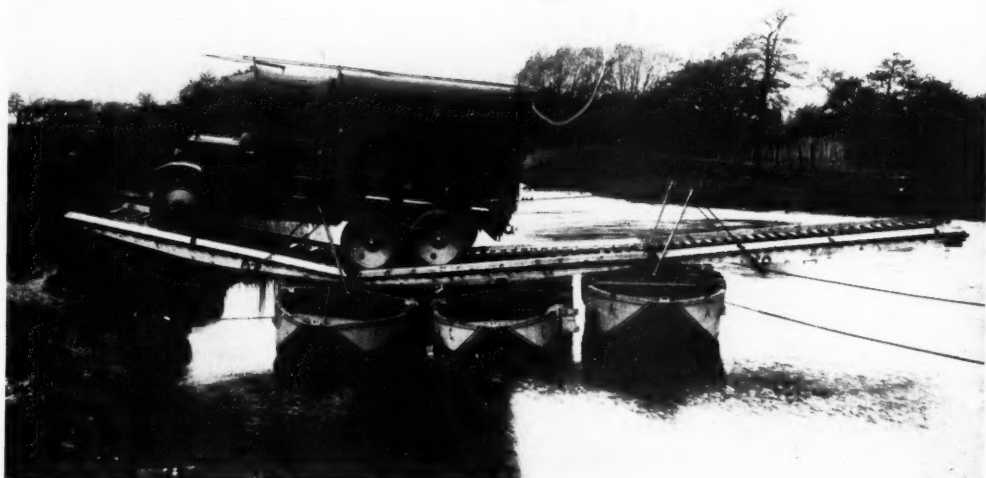
With regard to transportation question, I am not sure that this is quite so far advanced as bridge design ; but that is only natural. Until one knows the actual nature of the load, it is not possible to go into transport details. But the six-wheeler lorry seems to have solved most of our difficulties. As regards mechanization, as distinct from motorization, the lecturer has clearly told us that he does not see any prospect of getting much help from machinery, and I believe he is probably correct. It is, however, an unfortunate fact that it takes twenty men to man-handle a pontoon into the water, and it takes a working party of sixty men to build a box girder bridge ; so that if it were possible to reduce man-power it would be an advantage, more particularly, I think, for connection in the girder bridge.

The customary votes of thanks to the Lecturer and to the Chairman were then put to the meeting and carried by acclamation.



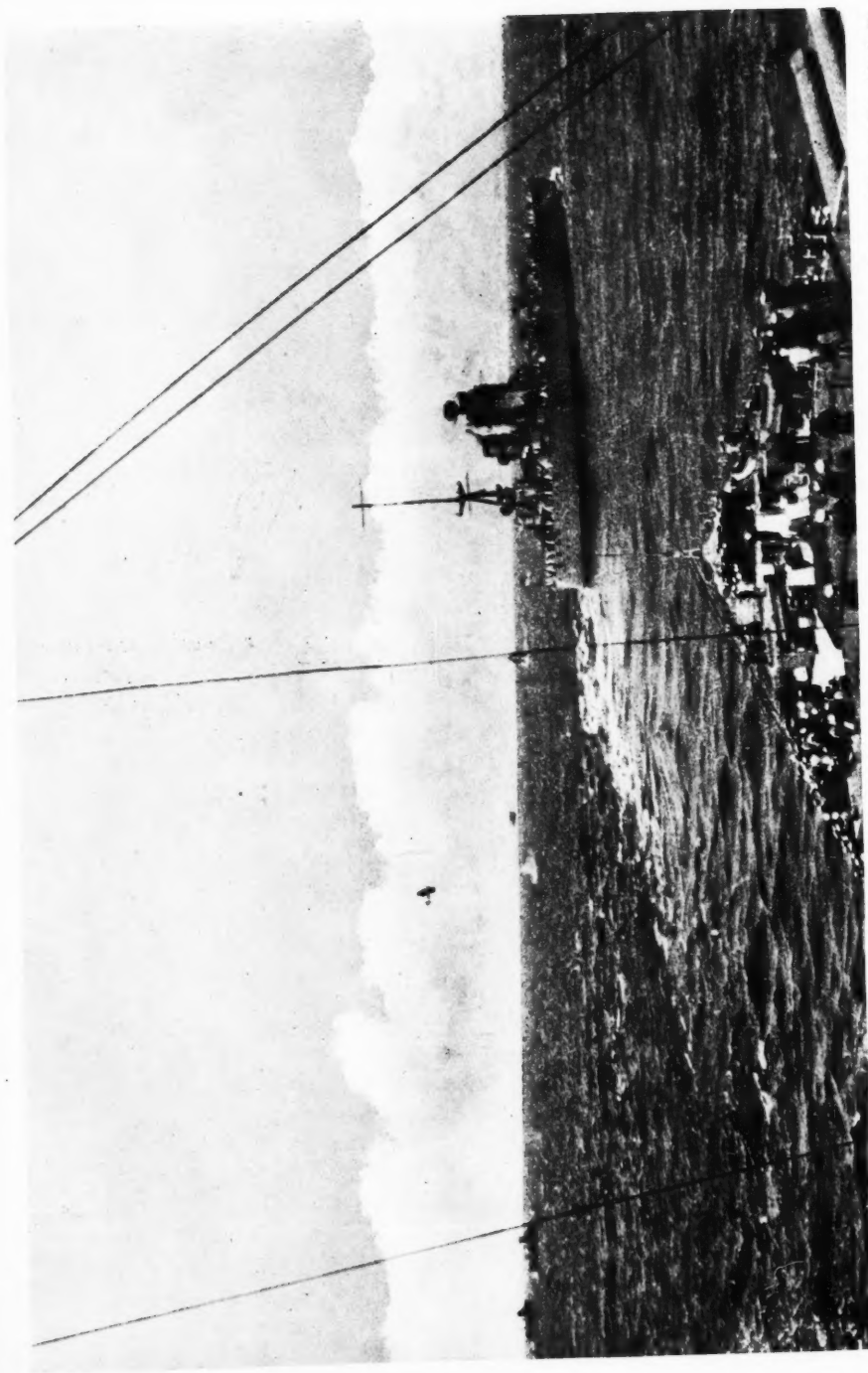
SERVICE BOX GIRDER BRIDGE

By permission of the General Staff.



COLLAPSIBLE BOAT FERRY WITH BROW SPAN

By permission of the General Staff.



Photograph by the Editor.

**AN ATTACK BY TORPEDO AIRCRAFT
WITH SMOKE SCREEN LAID BY AIRCRAFT**

By permission of the Admiralty.

AIR DEFENCE

BY COLONEL H. W. HILL, C.M.G., D.S.O.

AUTHORITATIVE literature on the subject of Air Defence—other than the Service Manuals—has, up to the present, been scanty in the extreme. Two recent books on this subject are, consequently, of particular interest, especially as each of the writers speaks with the authority of experience.¹

In General Ashmore's book, a concise historical narrative is given of the events leading up to the formation of the Air Defences of London, and the various changes in procedure that were necessitated in order to combat successive variations in the character of the attack. In the early period of the war, Zeppelins constituted the principal problem. These airships were easily picked up by searchlights and extremely vulnerable to A.A. gun fire. By October, 1916, the defences, so far as London was concerned, had "definitely overcome the airship menace, and from now on no German airship intentionally approached London itself."

The Germans, realizing that airship attacks on well-defended areas had become far too expensive, and now having bombing aeroplanes of sufficient range to reach England, decided to confine airship attacks to the North and Midlands, and to send aeroplanes against London. During the period May to July, 1917, there were six daylight aeroplane raids, two of which were driven home as far as London. The raiders inflicted heavy casualties and got away almost scatheless. Yet it is of interest to note that during the raid which took place on 7th July some 50 A.A. guns were in action; 95 defending aeroplanes took the air against the 22 bombers that came well over land; the coastal warning system worked well; and the defending aircraft were in the air within ten minutes or a quarter-of-an-hour of the time when the enemy came in over the coast. The success of these raids produced such an effect on

¹ "Air Defence," by Major-General E. B. Ashmore, and "Préparons la Défense Anti-Aérienne," by General Niessel. For this author's previous work see R.U.S.I JOURNAL, May, 1928, page 329.

the public mind that the Government ordered a reconstruction of the Air Defences. It was then decided to combine all the elements of the defence, both on the ground and in the air, under one Commander. General Ashmore took over this command on the 31st July, 1917.

The lack of success in dealing with daylight raids had been due to the fact that our pilots were seldom able to find the enemy; and, on the occasions that he was found, the majority of attacks on bombing formations were delivered by single aeroplanes, always with great gallantry but owing to the disparity of numbers at the spot with little effect on the enemy. This failure was not due to any fault of the pilots, but was due to the lack of precise information as to the whereabouts of the enemy. The defenders left the aerodromes without organization, and once in the air received no help from the ground. General Ashmore makes this point very clear when he states:—"The great principle of Air Defence was not yet sufficiently recognised, that although the aeroplanes are the first means of defence they are ineffective unless supported by a control system on the ground." Furthermore, during these raids the A.A. guns had on several occasions fired on our own planes—and in some cases—even succeeded in hitting them.

Immediate attention was given to the following special points:—

- (a) The formation of a barrier line of A.A. guns about 20 miles outside London, in order that formations could be broken up, thus giving our pilots a favourable opportunity to attack;
- (b) Careful arrangements to ensure that the A.A. guns and our pilots should really co-operate, and not interfere with each other as had previously happened;
- (c) Large white arrow signals capable of being pointed towards the enemy aircraft were provided at a number of searchlight stations and other points, in order that squadrons in the air could be given further information; and
- (d) Improved methods of fire control for A.A. guns were introduced.

These new arrangements were in fair working order in the close vicinity of London by the middle of August. Communications were fairly satisfactory, and it was found that the fighting squadrons could be manoeuvred from the ground by means of the arrows. It must be remembered that at this period no fighting machines carried wireless.

Daylight raids were carried out by the enemy on 12th and 22nd August. On both occasions the enemy was intercepted by our air formations and prevented from attacking London. On the latter

occasion, some 120 R.F.C. machines were in the air covering London, but the raiders were deflected by the Royal Naval Air Service and the guns of the Thanet Defences ; two of the enemy raiders were shot down by the A.A. guns, and a third destroyed after a fight above Dover.

Although the actual losses sustained were small, the German command evidently realized that the element of surprise was no longer to be attained, and, being outnumbered on both occasions, it was considered expedient to decline unequal contests. The subsequent German report ran that " the increased strength and better organization of the defences had now made it inadvisable to attack unless with machines that could fly loaded over 10,000 feet or under cover of darkness."

The next phase in the attack on London consisted of aeroplane raids at night. At first the raiders had it all their own way. The searchlights were not sufficiently advanced in training to pick up and hold an aeroplane ; the guns had nothing to lay on ; and few of our machines were, at that time, suitable for night work. But during the raid carried out on 3rd September, three Sopwith Camels had shown conclusively that night flying, and—here is the really crucial point—safe landing at night was for fighting machines a practical proposition. " This," as General Ashmore says, " was perhaps the most important event in the history of Air Defence. It falsified the official view, so recently expressed, that flying these machines at night was impossible." From that date, night flying with fast fighting machines steadily developed, and finally became the most certain means of ensuring the destruction of night bombers. But until searchlight procedure had been so far improved that planes could be picked up and held, the immense potential value of night-flying fighters could not be exploited.

The counter measures adopted were the following :—The introduction of a system of barrage fire to sound ; the development of night flying ; improved searchlight procedure ; and, a highly important step, the allotment of separate Fighting Zones to our pilots and to the A.A. guns. This latter procedure saved all confusion ; it enabled pilots to carry out their attacks unmolested by A.A. guns, and it enabled the gunners to open fire on all machines flying over their Zone.¹

A further measure of defence was the establishment of balloon aprons. By the middle of 1918, ten were in position, and could be raised to a height of nearly 10,000 feet. The aprons appear to have had considerable moral effect on the German pilots, as in March, 1918, they reported that " the aprons had increased enormously, and that they added greatly to

¹ If the gun and searchlight units are highly expert in identification, this separation of the fighting zones is unnecessary. In any case it cannot be applied in mobile warfare to forward areas.

the difficulties of the attack. If they were increased and improved much further they would make a raid on London about impossible." The effect of these balloon aprons was to induce the enemy to fly in the narrow zone of height between the aprons and the ceiling of their machines, thus reducing the work of our aeroplane patrols to comparatively narrow zones. As the defences improved during 1917 and 1918, increased casualties were inflicted on the raiders.

The final raid on London, which occurred on 19th May, 1918, was carried out by some thirty or forty bombing machines. During that raid there were twelve combats in the air. Three German machines were destroyed, and three others so badly knocked about that they crashed completely on landing in Belgium. In addition, three of the enemy were shot down by A.A. guns, and another had engine failure and landed in Essex. In all, therefore, the enemy lost ten machines.

It will be noted that each successive form of aerial attack lead to alterations in the methods of defence, and that comparatively small losses inflicted on the raiders proved sufficient to ward off attacks on areas known to be well defended. It is obvious that raiding aircraft, coming from long distances and having on their return journey a wide expanse of sea to traverse, are highly susceptible to A.A. gun fire, and are reluctant to take risks in aerial fighting. A chance bullet or some small piece of shell, almost unnoticed at the time, may result in the plane plunging into the sea, perhaps a hundred miles away from the scene of combat.

It is probably due to a not unnatural nervousness on the part of the raiders that barrage fire proved so successful in warding off bombing raids at night. Barrage fire is expensive in ammunition, and will always have its detractors. At one time, the control of barrage fire was over-centralized; but in the later period more control was given to the gun commanders on the spot. This was a desirable change. Far greater effect could be produced with a much reduced expenditure of ammunition. It may be concluded that until more exact means have been devised for ascertaining the precise position of invisible aircraft the barrage system must be retained.

A number of interesting sidelights bearing on the effect of air raids on the civil population are recorded. For example:—"On raid nights, and indeed on many nights when there was no raid, large numbers of people, especially aliens in the East End, were in the habit of going for shelter into the Tube Stations; 100,000 was a common figure, rising on occasion to 300,000."

A brief account is also given by General Ashmore of the work of the Air Defences in France. In the early days, the A.A. gunners experienced

great difficulties in dealing with aerial targets, owing to the lack of suitable instruments. It was not until 1918 that supplies of instruments in sufficient numbers became available. Even then, but few reliable height-finders—and in A.A. gunnery, if hits are to be obtained, accurate height-finding is essential—were in the hands of the troops. In spite of these adverse circumstances, “they succeeded, as a rule, in keeping the enemy at such heights that the effect on the ground was much reduced; they hindered or stopped a vast amount of reconnaissance, gun-ranging and photography; they prevented accurate bombing; their fire also helped our pilots in the air by pointing out enemy machines with shell bursts.” In 1918 the guns brought down 176 machines. The average number of rounds fired to bring down one plane was 4,000. “The actual result in machines brought down may not seem large. When, in the light of present-day knowledge, we consider how the anti-aircraft gunner of the Great War had to work with the crudest instruments, or without instruments altogether, it seems amazing not that the bag was small, but that there was any bag at all.”

The searchlight work in France rapidly reached a very high order of efficiency. Planes were picked up at considerable distances and heights and well held; but it was not till June, 1918, that No. 151 Squadron of Night Flying Fighters from the London Air Defences arrived in France to take advantage of this efficiency. In August, as a result of the co-operation of the searchlights with the squadron, 6 giant bombers were shot down. This success gave a clear indication as to the value of this form of active defence, but the paucity of lights restricted its use to comparatively small zones. Large lighted areas are required in order that there may be time and space for friendly aircraft to get position and deliver their attack, especially when bombing planes may be travelling at speeds of about one-and-a-half miles a minute.

A heavy concentration of lights was formed from Arras to the road East of Amiens. “Success was immediate and striking; between the 13th September and the end of the month, the squadron, working in excellent co-operation with the A.A. guns and searchlights, destroyed 14 bombers and put an end to the enemy’s activity in that part of the line.” This incident had an extremely exhilarating effect upon the troops. Instead of nights of unrest and tension, a spectacular drama far exceeding in interest any display previously staged was witnessed nightly by an enthusiastic audience who were far too enthralled to think of taking cover.

At this point it might be as well to state briefly the principal differences in the character of the Air Defence problems at Home as compared with those that occur during active operations in the Field.

HOME DEFENCE.

(1) *Enemy Objectives.*

Bombing London and other important centres.

(2) *Form of Attack.*

By day, bombing formations—possibly protected by fighters.

By night, streams of bombing planes flying singly several miles apart.

(3) *Previous Warnings.*

Provided that the objective is some distance inland, a high-class intelligence system enables our planes to intercept raiders.

(4) *Fighting Considerations.*

(a) Our air forces can push home attacks, knowing that the more prolonged the encounter the greater the chance of more of our planes joining in the fray.

(b) A.A. guns do not have to move and are not disturbed by hostile gun fire, consequently full use can be made of long base height-finders and electrical communications.

FIELD OPERATIONS.

- (a) Reconnaissance, Contact Patrols, and Photography.
- (b) Artillery Ranging.
- (c) Bombing concentrated areas and aerodromes.
- (d) Bombing railheads and lines of communication, depots, etc.
- (e) Bombing and machine-gunning troops on the march.

As for Home Defence, but in addition many small formations and single machines by day.

Generally speaking, there is not sufficient time to intercept any raiding formation by day which has an objective which is within 20 miles of the front line.

(a) Pursuits over enemy's line may lead to being intercepted on the return.

The enemy may also attempt to lure our planes over A.A. guns.

(b) Forward A.A. guns are constantly changing position; but they get much practice in shooting.

Long base height-finders and electrical communications can seldom be maintained.

(c) Searchlights. A semi-permanent lay-out, with all its attendant advantages and conveniences is the normal procedure.

(c) Searchlights can seldom be sited in the forward area or within range of medium artillery.

In mobile warfare only a minimum of telephone lines can be laid out.

(5) *Tactical Considerations.*

Bombing planes are more likely to fly on straight courses for prolonged periods. By day A.A. guns should utilize their power of inflicting casualties on the raiders by not opening fire at extreme range, if by holding fire for a brief period the enemy can be engaged in more favourable circumstances, i.e., at ranges under 5,000 yards. This may prove to be the most satisfactory method of performing the essential duty of breaking up formations.

Prolonged flights on straight courses are the exception. All reconnaissance planes must be engaged at the earliest possible moment, i.e., at extreme range. It is more important to harass all planes and keep them as high and as far away as possible, rather than to hold fire and attempt to make a bag.

It will be seen that conditions are so widely different that variations in procedure are inevitable.

In mobile warfare, if the enemy have powerful air forces, there will always be a number of hostile planes endeavouring to carry out reconnaissance and other work, and it would be of little assistance to the R.A.F. to have an incessant stream of reports regarding all planes seen. But formations must at once be reported.

In Home Defence, it is of the utmost importance that the exact whereabouts of every single hostile plane and formation should be continuously reported. If this be done, almost certain arrangements can be made to meet any daylight raid with superior forces. Continuous reports of night bombers enable a sufficiency of night fighters to be detailed to intercept each bomber at definite localities.

The necessity for a comprehensive intelligence system was early apparent to General Ashmore who, during 1917, did much to expedite the methods then in use; but these systems were found to be too slow and unreliable. In 1918, a complete reorganization of the intelligence system was put in hand. But that system and nearly all other air defence measures were abolished after the Armistice. In 1924, General

Ashmore initiated the present Observer System now extending over most of the South Eastern Counties from Hampshire to Suffolk.

"The principle to be followed in organizing an Observer Corps was simple—no hostile aircraft must be allowed to move over any part of the country without its movements being known constantly and instantly at the Headquarters of the Air Defences, from which the necessary orders and information would be issued to subordinates concerned. On this information also depends the system of civil warnings. To obtain the information it was necessary to cover the country, within range of bombing, with a series of posts—6 to 8 miles apart—provided with suitable watchers, and a complete telephone organization for quick reporting."

The Observer Corps consists of volunteers, enrolled as special constables, who undertake to perform observation work in the Air Defence Area of Great Britain, as part of their constabulary duties. These duties are local; members incur no liability to carry out observation duties at a distance from their homes. It is clear that the work entailed in organizing and developing this system was immense. But it has already proved its extreme value, since the system enables the actual course of all planes flying over the defended area to be transmitted to Headquarters with great speed and quite sufficient accuracy.

In the 1928 air manoeuvres "the day bombers made in all 57 raids. These were attacked thirty-nine times on the way in, and thirty-seven times on the way out. Only nine raids succeeded in evading the defences both ways. One hundred and fifty day bombers were adjudged to have been brought down by fighters." Without the Observer Corps such results could not have been obtained.

It is interesting to compare the above figures with those of 1917. The relative numbers in the air on the following days were as under :—

<i>Date—1917.</i>	<i>Bombers that came well over land.</i>				<i>Defending aeroplanes.</i>
25th May	16	74
13th June	14	94
7th July	22	95

Yet, with this great numerical preponderance, there was only one occasion on which three of our aeroplanes carried out a combined attack.

The basic principle of all warfare—be it sea, land or air warfare—is the concentration of superior forces at the decisive point. The Observer Corps enables this principle to be carried out more completely in aerial attack than in any other form of warfare.

The night work during the 1928 manoeuvres further illustrated the value of the Observer Corps. The courses of a large number of bombers were recorded concurrently, without confusion or difficulty. This precise and reliable information enabled many bombers to be intercepted.

Full credit must be given to the excellent work of the searchlights. Atmospheric conditions were highly favourable; but the searchlights were well handled. In most cases, the targets were properly picked up and held for long periods, thus enabling our pilots to launch their attacks. The progress made by the searchlights in recent years has been most striking. In night work success must depend very largely on good searchlight work. The Observer Corps is unlikely to fail; our night-flying pilots can be trusted to get to their destination; but the actual picking up of aircraft at great heights will always present difficulties. Clouds—even light clouds, also certain conditions of the atmosphere—increase difficulties in the most marked manner. But in all cases the searchlights should indicate the approximate position of the plane. The value of even an approximate position was clearly shown on 19th May, 1918. On this occasion Captain C. J. Q. (now Sir Quintin) Brand, of South African fame, who was on patrol above Throwley Aerodrome, observed a concentration of searchlight beams East of Faversham, and flew towards it. Whilst looking in the direction of the concentration, his attention was attracted to something passing above and to his left. It proved to be a twin-engined machine. This he engaged and brought down in flames.

Having regard to the greatly increased capacity now possessed by the defences of inflicting heavy casualties on raiders by day or by night, the question arises as to what is the most suitable proportion of bombing squadrons to fighting squadrons. General Ashmore states, "I submit that we are relying too much on the defensive power of offensive bombing. This over-reliance is reflected in the preponderance of bombing squadrons (thirty-four), over fighting squadrons (eighteen), in the published organization of the Air Defences of Great Britain." He draws attention to the fact that counter-bombing never has had any effect in preventing raids, but that comparatively small losses inflicted on the raiding machines—the Germans in 1918 lost only 14 per cent. of the aeroplanes sent to raid England—were sufficient *inter alia* to cause the enemy to abandon further attacks on London.¹

It seems desirable that there should be sufficient bombing squadrons to ensure :—

¹ See article on "Civil Aspects of Air Defence," JOURNAL of the R.U.S.I. for August, 1927, page 532.—EDITOR.

- (1) That effective reprisals could be immediately undertaken, and
- (2) That any potential enemy should be forced to provide and maintain the large forces that are necessitated by the defence of considerable areas. It seems possible that this object could be achieved with a peace establishment having fewer bombing squadrons, but a larger number of fighter squadrons. An increase in the number of fighting planes would undoubtedly add to the strength of the Home Defences; but large numbers of bombers operating against important railway junctions, mobilization centres and munition factories—many of which would be unlikely to have powerful A.A. Defences—would have considerable effect in any future war. It might result in a complete upset of the enemy's time-table, and give to the defenders just that added time which would turn certain defeat into stalemate. Operations of this type, however, can hardly be considered as defensive measures.

General Niessel,¹ in the preface to his book, stresses the great need of putting before the general public a plain statement regarding air attacks and air defence. The possibilities and limitations of each are discussed impartially. As the civil population are so deeply concerned, he considers it most desirable that they should have a clear perception of the actual risks to which they will be exposed; the difficulties attending the execution of successful raids; and the relative efficiency of various defensive measures.

The radius of action of heavy bombing service planes is taken as 250 miles. With this radius of action and taking also into consideration the use of light bombing planes from aircraft carriers, aerial attacks can, in theory, be delivered over the whole of France. The possibility—or rather the certainty—that commercial planes rapidly altered to carry bombs will be freely used, and the ease and rapidity with which fighting aircraft can be turned out is also given prominence.

A short reference is made to the effect which can be produced by H.E. and incendiary bombs, but attention is drawn to certain limiting factors. Although there exists an unbounded number of suitable targets, only a few can be attacked, since the number of heavy bombers and first-class pilots is definitely restricted. Furthermore, many bombs, particularly if dropped from great heights, will miss their objective.

The employment of gas bombs is dealt with in some detail. Quotations from various foreign writers tend to show that in a war for

¹ General Niessel commanded an Infantry Brigade in 1914; a Division in 1916; became a Corps Commander in 1918; was President of the Inter-Allied Commission of Control in the Baltic Provinces, later Head of the French Mission in Poland; and from 1924 to 1928 held the appointment of Inspector-General of Aviation. His wide experience enables him to consider A.A. problems from a broad point of view.

existence, the use of gas bombs may come to be regarded as an absolute necessity. That well-known German expert on gas, Herr Hanslian, has stated on this subject that :—" Gas offers to the nation having the highest technical knowledge a weapon which, if skilfully employed, must result in world power." The Conference at Washington in 1921 considered that it was impossible to prevent, restrict or control research with regard to new types of gas for use in war. A report directed to the League of Nations in 1924 drew attention to " the deadly peril that beset any nation lulled to sleep by international conventions, as that nation might be forcibly aroused and find itself helpless before a new and potent weapon. The entire community should be fully acquainted with the terrible menace that hangs over them."

An examination is then made as to the conditions under which gas will be truly effective. The first requirement is a sufficient concentration. It is scarcely possible to infect large towns or an entire battle-zone effectively ; but even a light diffusion can cause serious inconvenience and considerable losses if counter-measures are not immediately available. A German calculation in regard to the amount of gas required to destroy all life in Berlin (which may be taken as having four million inhabitants, distributed over an area of 120 square miles), indicates that about 3,000 aeroplanes each carrying 2 tons of gas bombs would be required. These figures show that the annihilation of a large town is not feasible. But a raid of 30 bombers is a practicable proposition. If that raid produced losses on the same scale there might be 40,000 casualties ! During the war, it is true, anti-gas precautions did much to reduce casualties. But the fact remains that if the necessary precautions are not taken well in advance, the losses may have to be reckoned in thousands. And it is no small matter to provide efficient gas masks for the millions who may require them.

Reference is made to the possible use of bombs containing cholera, typhoid, influenza and anthrax bacilli. But it would appear that there are considerable difficulties in their technical use ; if employed, they would readily be detected, and counter-measures easily produced by the Medical Services.

General Niessel draws attention to the fact that many writers on the subject of air raids draw vivid pictures of the panic and devastating effect on *morale*, that seem to them to be inevitable. Certain writers consider that air raids must destroy all form of resistance on the part of the populace and of the Government. It is, therefore, most necessary to weigh existing evidence on this point, and avoid letting the imagination run riot (*vagabonder les imaginations*). The air raids on London and the naval raids on Hartlepool gave a violent stimulus to

recruiting. The long-range bombardments of Dunkerque and Paris led to the development of warning systems and other arrangements to minimize casualties. The campaign in Morocco afforded further proof that a stout-hearted populace could not be stampeded into submission.

These two books on Air Defence, from both of which I have quoted somewhat freely, deserve to be carefully studied, not only by all immediately concerned with these problems, but also by the public at large, for the air menace is a real one. Aircraft can be rapidly constructed. In Neumann's "German Air Force in the Great War" he states that during the autumn of 1918, over 2,000 aeroplanes were turned out monthly. The British figures for production during the corresponding period is given by General Ashmore as 2,668 machines per month.

At the dinner of the Authors' Club, held on 4th November, 1929, Lord Thomson, Minister for Air, stated "One of the most grievous problems I have to face at the present moment is the expansion of Air Forces in other countries. All over the world one finds almost frenzied attempts being made to increase either their air forces or, what is perhaps more far sighted, their air power, by subsidizing civil aviation and by the purchase of military machines."

These facts and figures give some indication of the paramount necessity for Air Defence.

All writers are agreed that absolute security against aerial attack can never be guaranteed. However complete the defence may be, determined raiders, under favouring conditions of cloud, can carry out smash-and-grab raids. But the Air Defences of London in 1918, although admittedly far from perfect, were sufficient to act as a deterrent from 19th May until the end of the war.

It is eminently desirable that the scale of A.A. Defence should be commensurate with the importance and wealth of London. It is not, however, easy to lay down an exact standard of requirements. Available cash is limited; possible requirements are almost unlimited. The Service Estimates are already high. Perhaps other financial sources might be tapped. General Ashmore's book brings out the striking fact that, during the war, the Government undertook insurance against air losses. The rate charged was one-sixth per cent. The Government made a profit of £10,898,205 on the transaction. It is suggested that this form of insurance by the Government should be re-introduced, and a very low rate quoted—perhaps 5s. per £1,000—so as to be universally

acceptable. All monies produced by this insurance to be devoted to improvements in air defence over and above the present standard.¹

A.A. Defence would then be on a business footing. If the defences failed to prevent a particular building from being bombed, the owner could draw his insurance money. No compensation would be given to owners who, by not insuring, had reduced the possible standard of Air Defence. Even outside the London area the same logical arrangements would be in force. For example, the effect of insuring many businesses in the Midland towns would result in more cash being available for the defences, which, being correspondingly increased, might be the means of potential raiders on Midland towns being brought down in, say, Lincolnshire. The truth is that it is urgent to increase the present scale of defence which is, in amount, below the 1918 standard. Increased taxation without the obvious corresponding benefit of a direct insurance would be unpopular, and would present yearly difficulties.

Everybody is fully alive to the dangers of aerial invasion, but comparatively few have any real belief that Air Defence can be extremely effective. Too many already regard Air Defence as a somewhat feeble palliative. And this it undoubtedly will be if adequate provision is not made in time of peace. It took three years to build up the London Air Defences in time of war.

Since that war, a great deal of progress has been made in Air Defence. The yearly Air Force Pageant at Hendon shows the high standard reached by the Air Force; and night flying, which, in September, 1917, was for fighting aeroplanes regarded as an astonishing feat, is now a normal procedure. The Observer System has been developed over a wide area, and works with extreme efficiency. The Air Manoeuvres of 1928 were an excellent test of the capabilities of our searchlights. Steady progress has been made in A.A. gunnery. The co-ordination of the various elements of Air Defence is on sound lines. All the frame work is there. But the actual available numbers of A.A. guns and searchlights that can be manned is far too small. The Territorial Batteries and Searchlight Companies are much below strength. A.A. instruments and equipment are expensive items, but without them the defences must fall far short of their inherent capabilities.

In time of war, there will have to be a large increase in the number of A.A. units. There may have to be a blending of old units with new.

¹ As the main requirement is to produce an Air Defence Fund in time of peace, the terms of insurance must be made highly attractive. The first point to be laid down is the War Rate. The Peace Rate might then be made one tenth of the War Rate.

All insurances effected in time of peace would be allowed to carry on during a war at the above peace rate.

Any insurance effected within six months of a declaration of war would automatically, during a war, be raised to war premium rates.

With the present low establishments, the process may result in reducing all units to a far lower standard of efficiency than is desirable.

There is no mystery in Air Defence. It is an everlasting series of time and space problems, in all of which seconds are of the utmost value. Air Defence demands of its votaries the highest standards of skill and drill. Indifferently trained or hastily improvised formations must result in failure.

Night raids are the bug-bear of the defence. But if efficient search-lights are available in sufficient numbers, there will be a repetition of the magnificent achievements before Arras in September, 1918. Search-lights, however, require prolonged training.

The essential requirements, most of which have been clearly specified in General Ashmore's book, now are :—

- (1) A reconsideration of the relative strength of bombing machines and fighters ; but in any case further progress in regard to the existing policy of creating new R.A.F. units for Home Defence.
- (2) An intensive recruiting campaign to bring all existing Territorial Anti-Aircraft units up to strength.¹
- (3) This latter to be combined with an organized effort to explain to the civil population the extent of the dangers to which they are subjected, and the means whereby these dangers can, to a very large extent, be averted.²
- (4) A consideration of the financial aspect. Parliament being asked either for an increase in the estimates, or to sanction the proposed insurance scheme.

It will be seen that the last three requirements are all interlocked. As the civil population are so deeply involved, they should have full information regarding the problems connected with air raids and Air Defence ; when they realize that they themselves can make or mar the defence scheme, there seems to be every expectation that the necessary assistance will be forthcoming. The following remark of Admiral Mahan—although actually referring to coast defence—now appears to be attaining a far more significant application to Air Defence :—
“ Postponement of precaution is the sure road to panic in emergency.”

¹ It seems more important at the present time to increase personnel and cadres than to plunge heavily into equipments which may, in ten years time, become obsolete. In the *Daily Telegraph* of 6th January, 1930, the Aviation Correspondent (Major C. C. Turner), states : “ An all-round increase of speed for machines of the Royal Air Force will result from re-equipment now proceeding. Speaking broadly, the Royal Air Force is now passing from the 150 to the 180 miles per hour stage.”

Even these fighting aircraft may prove insufficiently speedy to out-manoeuvre the bombing planes of future manufacture. But over-caution in this respect must be avoided. The best is undoubtedly the enemy of the good, but an Air Defence to be effective must have the goods.

² See article on “ Civil Aspects of Air Defence.” JOURNAL of the R.U.S.I., August, 1927.—EDITOR.

A PIONEER BATTALION IN THE GREAT WAR

By "JET."

WITH the arrival of a condition of stalemate on the Western Front when the first Battles of Ypres drew to a close, a change took place in the establishments of the New Army Divisions in training in England, by which in December, 1914, the two Battalions of Divisional troops were replaced by a single Battalion of Pioneers. It may not be without interest, and perhaps not without value, since they were almost entirely a war product,¹ to trace from the experiences of one such Battalion the developments that took place during four and a half years in France, by which from a state of childlike innocence of all things military and a vague recognition only of the cover of the Manual of Field Engineering, a unit was evolved to fill an essential position in the establishment of a Division engaged in trench warfare. In its early childhood this new development had much with which to contend, from the haughty patronage of the Royal Engineers, sent for instructional purposes, to the superior if envious demeanour of the Infantry basking already in the glory of exploits to come. Nobody's child, dubbed non-combatants and grave-diggers, a nuisance to the Divisional "G" Staff, who had to invent a rôle for this ugly duckling in their schemes of operations, and to the "Q" Staff, to whom as yet they were but another irregular unit, the impression spread abroad that if all went well the Pioneers might serve their time in the galleys, but in emergency they would certainly be cast to the whale.

Little need be said of the specialized training during four and a half months at home, except that it occupied about one quarter of the time of the Battalion; the rest being allotted to musketry and infantry training, also that little of it proved of much value in the field, where pontoons and steam-rollers did not figure in the G. 1098, while the penalties for building a realistic strong point in the middle of a hayfield without permission did not hold good. The Battalion's allowance of sandbags amounted to about sixteen, which were issued to Companies in turn and duly emptied and returned by them to the Q.M.'s Stores at the end of the day's work. But the young Platoon Commander was

¹ They were, in fact, based on Lord Kitchener's Indian experience of Pioneer Battalions.

well occupied in obtaining a knowledge of the professional terminology of the navy and the district surveyor and of the tools they use.

At the time of arrival in Flanders at the end of May, 1915, there was a very extensive trench system in existence such that movement was freely possible by day, but owing to weather, shellfire and the nature of the ground the demand was great for manual labour of no very skilled variety, in order to keep the system open and to relieve the garrison of the trenches to some extent of that duty, and this naturally became at once the primary duty of the Pioneers. When they had been a week in the country, they found themselves digging, within a stone's throw of the Lille Gate at Ypres, a system with cut-and-cover shelters, part of the Canal Line, which eventually formed the Reserve Line in the critical period in June, 1918; then for six months, living almost on the work, they carried out with a monotonous regularity relieved occasionally by activities due to minor operations, or by short spells of employment as Divisional Reserve, construction, repairs and drainage, under the direction of the C.R.E., or, in the absence of the Division, under the Chief Engineer of the Corps. At first this amounted only to the provision of large working parties under R.E. supervision, but after a few weeks the Battalion Commander took over entire responsibility for the work, the nature of which is reflected in an extract from the notebook of an officer reconnoitring by day for work to be done that night:—

“ *West Lane.*—Trench very wet and no trench boards on piles yet; suggest taking away old barricades in switch and letting water drain away into low ground where trench crosses road for third time . . . further on parapet crumbling; mud, water, no trenchboards . . . parapet slipping on North side just east of culvert; . . . past drain parapet crumped in; . . . from Birdcage to culvert to be heightened; five crumps from second crossing to Cambridge Road. *East Lane.*—First 100 yds. very bad with mud and water; could be drained to existing drain on north side . . . From Birdcage to railway trench bad; whole part of trench should be drained forward to the Beke . . . bad crump 50 yds. from top on north side. *Mud Lane.*—Big crump 40 yds. other side of stream; all drains want clearing . . . two crumps 50 yds. from Witte Port Fm.; all that part of trench bottom bad; boards to be taken up, bottom made good . . . 11 crumps in East Lane, from Cambridge Rd. to shoulder, four in the trench.”

And so on.

Some of this work could be carried on by small parties of four or six men under an N.C.O. by day, but by far the greater part had

to be done between dusk and dawn, when, though often enough the nights were dark and wet and even the fitful glimmer of Verey lights sent up in the front line only intensified the pitchy blackness, working and carrying parties laden with rifle, equipment, pick or shovel, sandbags, trench-boards or revetting material could proceed direct to their work by over-ground routes. The picture of such a party of about a hundred men attempting to proceed up a winding trench lined and often overhung with telephone wires, over broken duckboards and uncharted holes, and meeting ration parties, reliefs and stretcher cases is better imagined than described. In times of special stress trench patrols would be provided by one platoon to ensure the maintenance of communications by day.

The organization of the Battalion for trench work developed normally as it became independent of R.E. supervision into the allotment by the Battalion Commander of certain communication trenches or of Brigade areas to Company Commanders, and, by a further development in January, 1916, three Companies were working directly under the orders of the Brigade Commanders, who provided accommodation in the Brigade area and to whom they afforded a small Brigade reserve in emergency. The fourth Company constituted a Battalion reserve to meet the many and various demands for working parties in the Divisional area. A typical work programme at the end of 1915 was as follows:—

Right sector.—"D" Company; on Coney Street (bad), Boor Lane and Gowthorpe Road.

Centre sector.—"B" Company; on Skipton Road to front line, west section of Barnsley Road, and make new cut to Colne Valley up to E. 28.

Left sector.—"A" Company; on Fargate with T heads to fire to the east, Wellgate, and Wyatt's Lane.

Companies to supply their own carrying parties and take over trench tramways in each sector, supplying breakdown gangs by night.

"C" Company; $\frac{1}{2}$ Platoon for Capt. —, Tunnelling Company; $\frac{1}{2}$ Platoon for erecting huts under R.E.; 1 Platoon for Div. Signal Officer; 1 Platoon for tramway repair and to provide carrying parties; $\frac{1}{2}$ Platoon for construction of horse lines under Transport Officer; rest and all Light Duty men for fatigues at H.Q.

The ruins of Ypres offered a wonderful opportunity to a resourceful Battalion, and at the end of June, 1915, after a visit to the Second Army workshops at Armentières, three small workshops consisting of an

officer and about twenty men each were started in Ypres for the benefit of the Brigades in the line, in which flooring, doors, roofs, mirrors and other accessories, taken from specified condemned ruins by permission of the Town Major and the Belgian authorities (and on production daily of permits, inventories and requisitions) were converted into periscopes, sniping devices, rifle batteries, duck-boards, direction posts and other non-official trench and dug-out fittings for the greater security and comfort of the Infantry. Difficulties arose, for instance over the production of a diamond for cutting mirrors in the construction of periscopes, and on occasions the house-breaking section whose duty it was to salve timber and anything else likely to be of use were precipitated by their own efforts or those of the enemy into the wine cellars of the late inhabitants of Ypres. With a view to economy of supply the shops were under the general supervision of the C.R.E., but otherwise they were entirely a battalion concern, and additional personnel to replace casualties was sent for training as fitters, carpenters, blacksmiths and tinsmiths at the Second Army workshops. An armourer's shop was added in August, 1915, at which repairs to rifles and machine guns were carried out to obviate the delay involved in sending them to the base. With the growth in experience of the "Brigaded" Company Commanders the demand for material increased considerably, and a more ambitious workshop was organized at the end of the year in a safer area not far from Poperinghe, equipped with sawmills and employing civilian labour, from which five or six G.S. wagon loads of manufactured material were sent nightly by the Battalion Headquarters direct to the Companies at work.

Early in 1916, the Division left the Salient and went to the Arras front, where the problems met with were of a different but probably simpler character, necessitating little modification in the organization of the Battalion for work. Company Commanders continued to report to and take their instructions from, Brigade Commanders, and, carrying out their work independently, were free to exercise considerable initiative. But they also benefited greatly from a close and friendly liaison which had by this time grown up with the Officers Commanding Field Companies R.E. In addition to routine trench maintenance they were entrusted with the construction of crater defences, redoubts, the installation of gas, points of defence, and owing to the presence of a number of North Country miners, they added to their accomplishments the driving of shafts and tunnel dugouts, facilitated by the nature of the soil on that front.

Except for a brief interval on the Somme, the Battalion remained on the Arras front till June, 1917, and during that time the shops, which on leaving the Salient had been handed over as a going concern

to the incoming Division, were re-established and extended to meet new demands and were raised to the dignity of "Divisional Workshops." Lathes, saws, drills and steel-cutting machines were salvaged from ruins in the forward areas and installed together with an electric lighting plant, and were run from steam or petrol engines similarly discovered and requisitioned. Civilian labour was again employed.

During the more active operations on the Somme the Pioneers filled their natural and logical rôle. Companies were withdrawn from Brigade control and remained wholly with the Battalion Commander, who was therefore better able, when time was of vital importance, to conserve his man-power for large undertakings and concentration at short notice on emergency works, or for a reserve in the hands of the Divisional Commander. Prior to attack the work included trenches, roads, assembly parallels, gun emplacements; and during attack, consolidation and the construction and manning of supporting strong-points and the re-establishment of forward communications by road and trench. Large numbers of men were then, as always, absorbed by carrying parties for material, ammunition and bombs beyond the point to which transport could proceed.

From the autumn of 1917 a further change gradually took place. More frequent moves interfered with the establishment of workshops; as ground was gained from the enemy, cover for troops in the new and devastated forward areas was harder to find and consequently the Battalion was accommodated further back in the divisional area, and further from the work, so that Companies ceased to be at the immediate disposal of Brigades; moreover, a larger amount of ground had, as a rule, to be covered, and the transportation of supplies and material necessitated the construction and repair of considerable lengths of road and rail track, while pipelines were laid to cope with the difficulties of water supply. For these purposes the Battalion frequently passed under the orders of the corps, when the Division went out of the line to rest. Officers and N.C.O's were, however, gaining a wide experience, which was passed on by means of courses of instruction in pioneer work for infantry N.C.O's of the Division, so that, with the aid of an infantry detachment, a section of Pioneers had become much more than the equivalent of the platoon of Pioneers of 1915. A system of specimen works was dug for instructional purposes; at Wulverghem a complete motor trench tramway system was maintained and worked by a party from one company; and as winter came on, a few less fit men were employed on charcoal burning and turned out thirty to forty sandbags of charcoal daily, prepared from timber salvaged in the neighbourhood, to be sent up the line where, had fuel been existent, fires were impossible owing to the proximity of the enemy. A message from the Divisional

Commander recorded his satisfaction at the work of the Battalion, "both in the trenches and in the various undertakings in which the Battalion is engaged."

During the prolonged winter operations of 1917 to 1918 in the Salient, which created a huge devastated area of mud in which roads, trenches and accommodation for troops were blasted away or sunk out of sight in the bogs which were formed by the blocking by shellfire of the Bekes and intricate drainage systems of the Flanders plains, trench digging was impossible, and communications were only maintained by means of duckboard tracks for foot traffic, raised on six or eight foot piles driven into the mud, and by roads made of a double layer of massive "slabs" of timber, laid where possible on the foundations of the former road or levelled up on "crib piers" and "runners" of timber, by means of which the road was carried over the larger shell craters and marshy stretches of ground; a ribbon of timber was laid along the edge of the road to save guns, lorries and wagons from slipping over into the sea of mud. Sandbags were for once at a discount, though a gallant attempt is on record, to build a road on sandbags filled with blocks of frozen mud. Two of the most famous of these corduroy roads on which the Battalion worked, "Plumer's Drive," running through Sanctuary Wood to Clapham Junction on the Menin Road, and the "Panet Road," between Wieltje and Gravenstafel behind the Passchendaele Ridge, extended for some 2,500 and 3,500 yards, and, as they were by day and night the highway to the front one or two miles away, they drew a corresponding amount of shellfire, and needed constant repair and rebuilding.

Little development took place during the last ten months of the war, when events moved with a rapidity which left no room for the finer organization of earlier times. Trenches, wiring, tunnelling, active operations at St. Quentin in March, with the loss of nearly half the Battalion, and again near Amiens in April; further feverish construction of defences in the neighbourhood of Aire, with Portuguese working parties, the attacks at Ypres in September and the final advance continued to bring a variety of problems. Past experiences had, however, bred an adaptability, especially valuable in the case of the N.C.O's, enabling us to gain a rapid grasp of any new situation, and so to tackle it without either minute instructions or close supervision, making the best use of any available material. This was the essence of pioneer work, to supplement the R.E., and to obtain the maximum output of skilled and, if necessary, technical work over the maximum area with the minimum expenditure of man-power, and in so far as this was attained, the development may be judged to have been sound. It was

not a case of acting "plumber's mate" to the R.E., but throughout the experiences of the particular battalion in question the sympathy and assistance of the Officers Commanding the Field Companies were of incalculable value.

This short account, though drawn from a knowledge of one Pioneer Battalion only, is probably representative of the war service of many others in France. They were solely the product of trench warfare, and, with the termination of the War, have ceased to exist. But their achievements assuredly justified their existence. A letter from the Corps Commander to the Battalion Commander in November, 1917, may be quoted in conclusion:

"Their work has had to be carried out under very arduous and trying circumstances without the stimulus of actually taking part in the offensive itself, although exposed to heavy shellfire which has, I am sorry to say, at times resulted in considerable casualties. The work that they have done has contributed to the success of the operations in a most direct degree, and it is no exaggeration to say that without such work no offensive could be successfully undertaken."

THE LIMITATIONS OF THE TANK

BY VICTOR WALLACE GERMAINS.

AT the present time the supporters of the tank as an instrument of war are putting forward ever-increasing claims on behalf of this type of armoured vehicle. Now, while admitting that the tank may possess considerable utility in war, it seems desirable to examine more closely than is usually done the more extreme claims that are being advanced by these champions of tank warfare of the future. This is the more urgent, because the more attractive a theory may be, the more necessary it becomes coolly and dispassionately to appraise it, since in war any theories of the "Get-Rich-Quick-Wallingford" type are not without an element of danger.

The claims put forward on behalf of the tank may be summed up as follows :—

- (1) Machines can substitute men, therefore mechanization will introduce *per se* an era of small "armoured" armies.
- (2) The Army of the future will follow in the footsteps of the Navy of to-day. Consequently, the military strength of nations will be calculated in terms of the number and types of available fighting vehicles.
- (3) This latter process will bring about the virtual elimination of conscript armies, thus endowing the British Army with advantages far in excess of its present numerical strength.

Let us examine these claims more closely.

(1) *Machine v. Man.*—We can take any practical test of experience we like and the answer will always be that the machine does not—and cannot—substitute the man. If we consider the conditions governing civil life, we find that the real effect of labour-saving machinery is not to eliminate human labour but to maintain the demand for such labour. If this were otherwise the machine would destroy the earning power of the people, and so on, until the owners of the machinery would have no market for the goods that they can produce with the help of machinery. These facts are, of course, applicable only to peace-time existence.

But in naval development we see this process in its most intensive operation. "Mechanization" did not mean smaller fleets but larger fleets, while it meant vastly increased numbers of *men*. It has entailed infinitely more complex problems of leadership. Thus Jellicoe at Jutland had nearly five times as many units as Nelson at Trafalgar; he had about four times as many men, and was faced by problems of tactics and of gunnery completely overshadowing those which confronted Nelson.

In the case of the Royal Air Force the process is similar. Here we have a new Service created under the strictest conditions of mechanization, yet the result is the same as in the Royal Navy: mechanization does not and cannot mean smaller establishments of men.

There is little need to go further into this claim of our "tank extremists."

(2) *Comparison of naval and military development.*—If it be true that armies are to follow in the footsteps of navies, the real conclusions to be drawn seem to be diametrically opposed to the teachings of the super-mechanization school. In any case, the popular comparisons between tanks and battleships seem to be fallacious, and due largely to lack of knowledge of the principles governing war at sea and the technical aspects of warship design.

The tank is not a land ship but a land *raft*. Half the hull of a battleship is submerged, and thus protected; the entire tank is raised above the land, and exposed to fire. The naval designer can economize weight by concentrating armour on *vitals*, i.e., waterline, magazines, engines, guns; the tank needs *all-round* protection. The warship-designer has a free hand to increase the dimensions of his ship, save for considerations as to docking accommodation or political restrictions, such as the Washington Conference; the tank designer is cramped in dimensions by the necessity for being able to use existing roads, railroads, and bridges. The entire structural problem to be solved is, therefore, different.

Again, the bigger the ship the more economical she is in attaining a given speed, the greater the relative gain in the buoyancy available for guns, armour, etc. The tank "floats," but to preserve her buoyancy we cannot increase, beyond certain limits, the weight per square inch of bearing surface. To increase the size of our tank we must spread her out, make her longer or wider. This means an increased area of bearing-surface, resulting in an increase of friction, which, not being obviated, as in the ship, by stream-lining, again means an increase of engine-power, thereby cutting into the weights available for guns, armour, etc. Thus, even if the land were one vast plain, and even if

there were no such things as woods, swamps, rivers, streams, mountains, forests, cities, towns and villages, the problem of tank design would still differ so fundamentally from warship design, as to render the popular analogies between tanks and battleships illusory. The whole course of evolution which produced the "Dreadnought" depended upon the engineering advantages to be gained at sea by the big ship, as compared with the little one. In 1905, to have produced a ship with the tactical qualities of the "Dreadnought" (17,900 tons) on the displacement of the "Warrior" of 1859 (9,250 tons), would have been a physical and mechanical impossibility.

The purpose of naval armour is to protect the *ship*. Employing, as she does, the principle of displacement, a water-line hit means the ingress of water and destruction of the vehicle. The naval designer protects first the water-line, then the engines and magazines, lastly the big gun positions. The protection of *men* is to him a minor detail. The purpose of tank-armour is to protect, not the *vehicle* but the men in the tank. To armour the tank against guns is impossible; tank-armour, in the words of its most ardent votaries, is meant "to cut out the bullet." If naval armour, after seventy years of experiment and research, has failed to "cut out" the shell, the prospects of "cutting out" bullets on land seem somewhat debatable.

Even the biggest battleship is a compromise between divergent claims for guns, armour, speed, endurance. To crowd every element into one design at maximum power is recognised as impossible. The result is the differentiation of warships into battleships, cruisers, destroyers and so forth. It is important to realize that scientific achievement has not affected the fundamentals of naval design. Whatever the distinction in design and purpose between the "Nelson," the "Mauretania," a tramp steamer, a destroyer, or a submarine, the primary job of the designer is always to produce something which will float; he must always calculate in such terms as "hogging," "sagging," "metacentric height," etc. When the "Warrior" was designed in 1859 her designer had to calculate in exactly the same terms; it was his job to make, for military purposes, the most economical and effective distribution of a sum total of weights available among varying factors of armour, speed, guns and endurance. In striking this balance between rival claims he must make a reasoned estimate of probabilities, this estimate being based largely upon peace-time experiments with weapons. When the "Nelson" was designed in 1922, her designer's problem differed in degree but not in kind. He also had to make an estimate of probabilities; he also had to make a compromise between guns, armour and speed, etc. Scientific achievements had only made his

problem more difficult, for in the meantime there had developed air and submarine attack, whilst the recoil strains of the "Nelson's" 16-in. guns would have made the hair of the "Warrior's" designer stand on end. Scientific achievement is not likely to affect the basis of tank design.

The naval analogy as regards tanks versus infantry fails, because at sea there is no infantry. Nor does it follow that, because an armoured warship is at advantage against an unarmoured one, the armoured tank is at equal advantage against an unarmoured tank. Suppose the tank designer splits up the weight given to armour between heavier guns and heavier engines? The unarmoured tank could then choose her own range; her heavier guns could get her blow in first. The practical difficulties in the way of ranging render the combat tank versus tank akin to a cowboy fight in a Wild West novel; given accuracy of fire and a shell heavy enough to do the job, it will be the side which gets in the first hit which will win. Armour which is a practicable proposition would not really be worth its weight. The Navy, in building destroyers, realizes this. Ships displacing 1,800 tons, armed with 4.7-in. guns, are built vulnerable to a rifle bullet.¹ But an enemy destroyer, armed with machine-guns, and whether armoured or not, would be knocked out long before she had a chance to be dangerous.

(3) *The influence of numbers on tank design and tactics.*—The power possessed by the Continental designer to "cut" designs, either for or against armour, due to the fact that he works in conjunction with a numerous infantry and powerful artillery, is not sufficiently realised. If he wants a battle-tank he can scrap high speed, lengthy "circuit," produce what is in reality a land-monitor, slow, massively armoured. Such a tank would be very vulnerable to artillery, but could rely on the artillery of her own side for covering fire. Her armour would be meant as protection against infantry anti-tank weapons. On the other hand, if it is a matter of area-warfare, the Continental designer would act very

¹ The explanation is of course that the weight of armour needed to be truly protective—3-in.—would be so great as to cut the speed factor, thus defeating the purpose of the ship. If with all his great advantages the naval designer concludes that to armour an 1,800 ton ship is a game not worth the candle, the advantage of armouring a 40-70 ton tank will strike the thoughtful soldier as more apparent than real. The French *Char de Rupture*, perhaps the most heavily armoured tank in existence, weighs 65 tons and has a speed of only 7 m.p.h. She is in reality a throw-back to the tactical qualities of the Mark V, and in such an attack as Roye-Hattencourt-Hallu, where our 1918 tanks sustained losses exceeding 50 per cent., these heavily armoured tanks would be annihilated. Instead of horse-drawn German quick-firing artillery they would be pitted against tractor-drawn or self-propelled semi-automatic guns specially fitted with a wide lateral traverse.

foolishly in burdening a tank, meant to counter this, with armour useful only against infantry. It would be his policy to reduce armour at most to gun-shields against shell splinters, and to devote his main design to speed, gun power and endurance.

The popular theory that tanks and aircraft have reduced the value and importance of infantry appears to be an illusion. For war on land the man fighting on his own feet will always have certain advantages over the man who fights mounted on a machine, however powerful this may be, and whether it flies through the air or waddles over the land. The man flying high up gets only a general view over the country beneath, various means are available to deceive him, while he is dependent upon weather conditions. The tankman is limited by terrain, he can see and hear little, and he is hampered in the free and effective use of his weapons. Thus both aircraft and tanks have advantages and disadvantages. Infantry can go anywhere, can act by night as well as by day, is practically independent of weather conditions, and gets the full fire effect of its own weapons. The rifle is just as much a machine as the tank: it is a hand-machine. We cannot give the infantryman a rifle which will penetrate *all* tank armour, but we can give him one capable of dealing with light tanks or armoured cars, and a machine-gun, such as the Lewis gun, capable of dealing with medium tanks at 300-400 yards, or heavy tanks at close range.¹ But the real weapon against the heavy tank is the gun. Our present anti-tank gun has been aptly described as an admirable exposition of the ideas of 1919. A moderately powerful, small calibre machine-gun, equally useful against low-flying aircraft and other infantry, would be preferable to a weapon theoretically more powerful but which would not be there when it was needed. In practice the tractor-drawn or self-propelled 18-pdr. semi-automatic, with wide lateral traverse, is preferable to smaller calibres.

That the "unprotected" infantryman is no fair match for the man fighting behind entrenchments or obstacles is a truth old in history. The whole evolution of fortification is dependent upon this.² Nowadays the "mechanization" of artillery and the development of map-ranging have introduced new factors of fire-mobility. Infantry, employing "infiltration," "fog," or night attacks, are in many respects better able to exploit these new factors than tanks, which lack silence and flexibility

¹ The sides and tracks of these will always be a more vulnerable target than the front plates.

² The medieval foot soldier set to storm cities under menace of boiling oil, molten lead and such like defensive adjuncts: he was also dependent upon the artillery of that day, battering rams, catapults, ballistæ, etc. The war on the West Front was a siege. But the German "hurricane bombardments" and attacks by "infiltration" proved a formidable and successful combination.

in attack. It is impossible to lay down hard and fast rules. Under certain conditions a tank attack may be decisive ; under other conditions it may be a disastrous failure, and an infantry attack should have had greater prospects. What the tank gains as compared with the machine-gun it loses as compared with the gun. Every thoughtful soldier must feel that it is ludicrous to talk and write as if the fire power of 400,000 infantry could be reduced to an utterly negligible factor in land warfare. No war experience really supports such theories. " Their true role," wrote Haig of tanks and aircraft, with the experience of Amiens fresh in mind, " is to assist the infantryman to get to grips with his opponent . . . only by the rifle and bayonet of the infantryman can the decisive victory be won." In these words is expressed the grim gist of war experience.

Tanks and aircraft *substitute* nothing.

ARMoured CARS AND THE ROYAL AIR FORCE:

A REPLY

BY CAPTAIN R. G. LEWIS, *p.s.c.*, Royal Tank Corps.

IN the November issue of the JOURNAL Flight-Lieutenant Gibbs maintains that, tactically, technically, and economically, armoured cars, if not all armoured fighting vehicles, should properly belong to the Royal Air Force. He advances certain arguments in support of this contention. Let us examine his arguments and see whether or no they rest on any solid foundation.

In order to carry out this examination as briefly as possible, it is necessary to re-group Flight-Lieutenant Gibbs' arguments, and I hope that this re-arrangement will not seem to do any injustice to the author. As I understand his arguments, he claims that the Royal Air Force, as it exists to-day, can operate and maintain armoured cars without any noticeable increase in commitments, either of tactical training, technical training or of personnel: while, if the Royal Air Force did embrace the armoured cars, he maintains that there would result a valuable economy coupled with a great improvement in co-operation between the cars on the ground and the machines in the air. More than half of his article is devoted to historical examples purporting to support these claims.

I suggest that these historical instances, though interesting in themselves, have nothing whatever to do with the main issue. If they form an argument in support of anything it is for the formation of what he calls a "petrol force." As an excuse for the transfer of armoured cars to the Royal Air Force they are irrelevant; while the composition of the force which he regards as the logical outcome of his discussion is based upon a fundamental misconception of the characteristics of the armoured car.

Similarly, certain of the figures he produces to support his plea of economy provide, not a reason for relegating armoured cars to the Royal Air Force, but for the formation of fully mechanized units to replace the older units of the Army. There is much to be said for this plan and

something to be said against it ; but to be enticed into too close an examination of the " petrol force " idea would be to avoid the reply which this article sets out to supply.

The technical advantages claimed by Flight-Lieutenant Gibbs are advantages in facilities for training and for maintenance. I assume that he claims no similarity in problems of design ; since outside the engine no similarity exists.

The design of armoured fighting vehicles is still in its infancy, both as regards design of transmission and of the fighting compartment. Very great strides have been made, not only in these branches, but also in the production of weapons suitably modified to meet the peculiar and exacting conditions which obtain inside an armoured fighting vehicle. Quite apart from any other reasons, to change, at this stage, the machinery and responsibility for design would be tantamount to a retardation of development which might be estimated in years. At any rate, there is in existence at the moment nothing to justify it. But Flight-Lieutenant Gibbs does claim the existence of a similarity in technical training and maintenance.

There is, of course, no doubt that any pooling of workshop resources must effect an economy, provided that the work passing through each shop is uniform. But, at least as far as military work is concerned, it is doubtful whether any very real economy is effected by forming one large shop sub-divided into departments corresponding with the varieties of work undertaken, as opposed to providing two or more smaller shops, each specializing in a certain type of repair. It is certain that grave tactical objections exist, which will tend to limit the size of such installations. And in war, efficiency not economy is the ruling factor.

Even so, apart from workshop maintenance, there is the maintenance carried out by the crews themselves ; and in this, I think, lies a difficulty which is not always appreciated. I am open to correction, but the outside world is under the impression that the Royal Air Force is organized so that a highly-skilled ground staff is trained to maintain the machines for the fighting personnel. The fighting, or flying, personnel is only required to know enough to be able to detect and report faults ; the rectification of the faults is the duty of the ground personnel.

Now this is a fundamentally different state of affairs from that which exists in units which man armoured fighting vehicles. The essential feature of the maintenance of the armoured fighting vehicle is that the crew which mans it should be capable of keeping the vehicle running, and its weapons efficient, by means of a system of repair known as " replacement by assemblies." The degree of skill required for this form of repair work, though not high, is one that calls for considerable

training. Six years with the colours, much of which is necessarily spent in other essential work, has been found all too short to train fully the enlisted man. Without this system of replacement it is generally recognised that it would be impossible to keep any considerable number of vehicles in the field. Armoured fighting vehicles, in war, cannot return each night to what is, in effect, an advanced base of no mean resources.

Here, then, we find no existing similarity which would excuse a transfer. If Royal Air Force flying personnel is to take over the armoured cars it will have to be trained in maintenance. If the Royal Air Force maintenance personnel mans the cars it will have to be trained tactically. Either course entails the training of men in a subject with which they are unfamiliar. Nor can there be any question of reverting to a system of workshop maintenance similar to that existing in the Royal Air Force. It is generally admitted that the weakness of any fully mechanized formation will be its "tail" of rearward services. The more the maintenance and repair work generally carried out by fighting units themselves, the smaller will be the "tail." Moreover, the workshops which are only mobile at the expense of efficiency can be kept more concentrated nearer the base of operations, and so better protected.

"Replacement by assembly" has come to stay.

So much for maintenance and technical training. Let us now consider the statements concerning tactics.

Tactics, according to a good authority, is "the art of disposing troops for or in battle." In order to make these dispositions, according to another good authority, some degree of tactical training on the part of the troops to be disposed is desirable. That being so, it seems that tactics and tactical training may be considered together.

Now, it is undoubtedly true that the tactical employment of armoured fighting vehicles demands a "new vision unhampered by a training devoted to warfare restricted to the support of infantry." But the truth of this statement is not at issue. The question is, can the Royal Air Force really provide the training which will be necessary to support this vision? I do not know, in detail, what training responsibilities the Royal Air Force bears, but I imagine that, on its strictly combatant side, it sets out to train personnel to fight in the air, personnel to bomb ground targets, and personnel to reconnoitre from the air, either by eye or by photography. Still, it is an established fact, frequently emphasized by Royal Air Force speakers and writers, that special training is required for each class of personnel. Presumably this special training is needed because the tactics and technique employed by the three classes differ

so widely. To which class, then, does Flight-Lieutenant Gibbs propose to allot the armoured cars? He seeks, I suppose, some similarity in tactics between the armoured cars and the selected class. If so, does he find it in photographic reconnaissance or in the work of a single-seater fighter squadron? He does not say. Personally, I fail, as I think he failed also, to find it anywhere. It would seem as though he would cause the Royal Air Force to train a fourth combatant class, the armoured car personnel.

That, given time and experience, the Royal Air Force can produce the necessary instructors there is no doubt. But from what existing source are they to come? They can only come—Iraq is an example—as an addition to the existing resources of the Royal Air Force. But this is not what Flight-Lieutenant Gibbs proposes. A transfer of money from one vote to another is no economy.

In addition to technical and tactical training, there is the individual weapon training of the man. This, in itself, constitutes a special problem which is only now, after eleven years of trial and experiment, on the eve of solution. Without entering into details, it is safe to say that, even in the simple instance of the armoured car, there is no similarity between gunnery in the air and gunnery from an armoured fighting vehicle sufficient to make a man who has been trained in the one efficient in the other. The actual weapons themselves are different, and are differently mounted; the sights are different; and, not least important, the conditions of operation are entirely dissimilar. It follows that the training must be different. I see no case for transfer here: nor, I think, did Flight-Lieutenant Gibbs: he has sought to effect an improvement in co-operation, but without considering very closely the characteristics of the armoured car.

The armoured car is not an assault weapon. It has neither the performance, armament nor protection to assume such a rôle. On the other hand, it is expensive; and though not powerful enough to assault, it is too powerful and expensive, and, therefore, provided in too few numbers to be relegated to purely protective duties. Convoy work and the like must be left to something lighter, cheaper and easier to improvise. The armoured car is admirably suited to reconnaissance, and is powerful enough to be employed with surprise in raids. With whom will it co-operate when carrying out these duties? Surely, with the commander on the ground and his ground troops, if one admits the need for any commander, or any troops, in such an inferior position! The commander on the ground requires information, early and continuous, in order to make his plan; and further information throughout the whole of the time during which his plan is being carried out. For this purpose,

airplanes are allotted to him. If the weather is good, and if local and temporary air superiority has been secured, he may obtain information from these machines, though frequently it may be negative, since an airplane observer cannot yet say with certainty that this village or that wood is unoccupied. He can only say that he saw nothing which led him to believe that it was occupied. This may, or may not, suffice.

Frequently a commander will require positive information which the air could not, in the circumstances, provide, and for this, in the more distant localities, he is provided with armoured cars. Closer to him and all providing information within their respective circuit of action and view are his cavalry, infantry and artillery observers. Flight-Lieutenant Gibbs, having doubtless given due consideration to this picture, recommends the placing of a part of this machine of reconnaissance, the long distance part, under the Royal Air Force.

But, logically, the whole machine should be under one hand. Yet he hesitates, and naturally so, to advocate that the Royal Air Force should train in peace and control in war the cavalry, the artillery and the infantry. He saw, no doubt, the superficiality of his own argument and wrote, "in considering the situation from a broad point of view"—always a dangerous thing to do if one disregards the details—"it must be recognized at once that a certain portion of the Royal Air Force will always be reserved for the exclusive use of the Army, therefore there can be no reason to suppose that a proportionate"—mark the adjective!—"number of armoured cars would not also be earmarked for a similar duty." So he proposes, in effect, to leave the whole machine of reconnaissance under the commander on the ground, but to limit him firstly as to the number of armoured cars he may have, and secondly as to the uses to which he may put them. For who can doubt that, with the armoured cars forming a component part of a unit provided for reconnaissance, the commander would be limited to employing them for this role alone. No less can it be doubted that if armoured cars have other Royal Air Force duties to perform, they will not be available in numbers sufficient to carry out the duties required of them by the Army. Are not the Army Co-operation Squadrons, Royal Air Force, already reduced to a minimum, and for what end did the Royal Navy struggle so long?

But not the whole of the armoured cars, now a component of the Royal Air Force, is to be allocated to the Army. Some, according to Flight-Lieutenant Gibbs, and I suggest by far the larger part, are to be employed, firstly as a component part of a "petrol force," the nucleus of which is to be airplane units, and secondly on such defensive duties as the local protection of aerodromes, the protection of Royal Air Force

convoys and of Royal Air Force installations against low-flying aircraft. Here lie, not the seeds of improved co-operation, but the weeds, already partly grown, of inter-service squabbles. Better results are likely to attend a close adherence to the admirable principles set forth by Flight-Lieutenant Gibbs himself in his opening sentence.

In the "petrol force" argument—really a digression from the main issue, but grouped under tactics for some reason not immediately apparent—we find a fundamentally erroneous conception of the foundation of such a force, coupled with a mistaken notion of the characteristics and capabilities of the armoured car. For a "petrol force" is essentially a ground force, and must, therefore, like any other ground force, be built up around a nucleus of the assault arm. It cannot be built up round a force of airplanes. Nor can it be built up round an armoured fighting vehicle which, by reason of its armament, protection and performance is not, and cannot be an assault weapon.

"The petrol," or fully mechanized, force idea has undoubtedly come to stay;¹ but when finance allows it to pass from bud to blossom it must be a force complete in itself which can reconnoitre and assault. If it is to be a Royal Air Force formation, then the Royal Air Force must embrace the tank and equip themselves with the right type of armoured fighting vehicle for each duty which the component parts of the force will have to carry out. I think Flight-Lieutenant Gibbs saw this also, but he decided to gloss over the difficulty. To mention it would not have been progressive "with caution." The matter is worthy of much fuller and quite separate treatment. It should not be confused with the proposed transfer of armoured cars to the Royal Air Force, for it has no bearing whatever upon that question.

The remaining tactical duties advanced as reasons for placing armoured cars under Royal Air Force control may be disposed of in a score of different ways. Let it suffice to point out that the armoured car, in the modern sense, is a very different thing from "a car which is armoured."

The number of armoured cars proper will always be limited, in peace, by their expense, while in war the machinery which could produce them in considerable numbers within a few months of mobilization will almost certainly be required for other and more urgently needed types. But "the car which is armoured," on the other hand, will be available in large numbers from civilian sources, provided that a little forethought and standardization takes place in peace. These vehicles cannot perform the role of the true armoured car, but they can carry out Flight-Lieutenant Gibbs' miscellaneous duties. And economy, if nothing else, will ensure that they, and not the armoured car proper, shall do so. If the Royal Air Force is dissatisfied with existing arrangements made

¹ In this connection see "Correspondence," p. 186.

for its own safety on the ground, the logical, economical and tactically sound course of action is, by liaison with the Army authorities in peace, to ensure that an adequate number of "cars which are armoured" will be immediately available on the outbreak of war. It is obviously unsound and uneconomical to divide the responsibility for the safety of the rearward services. Nor is safety best secured by sitting, like a hen with chicks, upon the object to be protected.

And now the question of economy.

We have found no economy in training, a doubtful economy in the pooling of workshop resources. We will go so far as to disregard as irrelevant Flight-Lieutenant Gibbs' figures in support of a "petrol force." There remains whatever economy can be found in the pooling of transport and transport personnel, and by the employment in armoured cars of personnel no longer fit to fly.

The pooling of transport and the means of maintaining it as between the two services would no doubt effect an economy, and is, to some extent, at least provided under the existing organization for supply of both services in the field. But I fail to find in it any reason for transferring armoured cars to the Royal Air Force. The interchangeability of transport personnel has not, as far as I know, been considered, but no doubt an economy could be effected here also. But what has it to do with armoured cars? The disposal of personnel no longer fit to fly is admittedly a problem. I have no statistics to show the causes which result in unfitness to fly, but I suggest that a high proportion of the unfit would be unfit also for the arduous duties of an armoured car unit. I prefer to find an outlet in the manning of transport vehicles and of "cars which are armoured," but I take no credit for the solution: Flight-Lieutenant Gibbs has provided it.

And yet the Royal Air Force does, at the present time, operate and maintain armoured cars in various parts of the world. Why, then, it may be asked, not allow the Royal Air Force to operate and maintain the armoured cars which will accompany the Expeditionary Force? The answer is to be found in part, I think, in considering the nature of duties carried out by the armoured cars now under Royal Air Force control, and by comparing with them the duties which the armoured cars of the Expeditionary Force will have to carry out. In part, also, it is to be found in the nature and extent of the training required to carry out these widely-divergent duties; while for the remainder, it should be remembered that the Royal Air Force armoured cars are obsolescent in type, and would be more accurately described, when viewed from the Expeditionary Force point of view, as "cars which are armoured." As a weapon develops, the degree of skill required to

fight and maintain it increases ; with the need for increased skill comes the need for better and fuller training ; and as these proceed side by side, they are inevitably accompanied by an increase in the demand made from the vehicle, which in turn causes further development, and so on. We do not stand still in the armoured fighting vehicle world any more than one does in the Royal Air Force.

But once any type of armoured fighting vehicle is attached as a subsidiary to an entirely different service, one runs a great risk of producing a "Cinderella." I suggest that Flight-Lieutenant Gibbs should compare the present day Royal Air Force armoured car with the modern Army armoured car, and ask himself which is the better weapon, and whether the improvements in which even he finds to be the better have been effected as the result of Royal Air Force or of Army experience and endeavour. Specialization is the essence of progress.

Flight-Lieutenant Gibbs set out to make a case for the transfer of armoured cars to the Royal Air Force. I think he fails, partly because he has a bad case, and partly because the "petrol force" idea tempted him from the main issue. Yet if he seems to have failed in his main object, he has succeeded elsewhere. He has drawn attention to the great importance of co-operation between the machine in the air and the machine on the ground.

There can be no doubt that this co-operation must be an essential and predominating feature of any successful mechanized formation. We are tending more and more towards the production of a truly mechanized force, but are we giving proper attention to the uses of aircraft within, and in support of that force? What should be the proportion of airplanes, and what their role? Is the Royal Air Force to provide them? What are the types required? Is a special form of training necessary? Have the lessons of 1918 been forgotten?

In the answers to these questions I suggest that the Royal Air Force will find ample occupation ; occupation so ample that it will not need, or want, to turn to the manning of the vehicles on the ground, which it will support to victory.

Ne sutor ultra crepidam.

THE IMPERIAL JAPANESE NAVAL COLLEGE

THE Naval College was established originally at Tokyo in 1869, and was transferred to its present site at Etajima in 1888. Since its foundation 5,562 cadets, including 14 Princes of the Imperial House, have been passed through the College. Since the War, the number of cadets entered yearly has varied between 300 (in 1919) and 50 (in 1922), the number entered in 1929 being 130. In addition to the training of naval cadets instruction is given to warrant officers who have been selected to qualify as special duty officers. This system was introduced in 1921, and 229 officers of this type have passed through Etajima.

The College is situated on the eastern side of Eta Uchi, a large and almost land-locked bay on the west coast of Etajima, which provides every facility for the practice of elementary seamanship, boat pulling and sailing, swimming, etc.

The College buildings are placed round two sides of a large parade and playing field on level ground facing the bay, behind which rise the foothills of Furutaka Yama (1,200 feet). The main buildings—comprising cadets' dormitories, class rooms, studies, dining hall and gymnasium; officers' quarters and club; a large ceremonial hall; and the ship's company's quarters—are mainly built of brick and, although many are old and date back to the early days of the College, they are all well kept and in good condition. The grounds are well laid out and maintained. On the side of the hills, behind the College buildings, are separate residences for the President and the principal naval officers and civilian instructors on the Staff.

With the exception of the officers' club, which is well and comfortably furnished, and the ceremonial hall, which is imposing if somewhat ornate, the interiors of all the College buildings are bare and comfortless, giving a foreigner an impression of dreariness and discomfort, which is probably not felt by the Japanese themselves who are accustomed to bare walls and unfurnished rooms. At the same time, the plainness and simplicity of the living rooms is no doubt intentional, and forms part of the system which makes the cultivation of physical endurance and hardihood one of the most important parts of a Japanese cadet's training.

The ceremonial hall is the centre of the patriotic cult. It contains a throne for use by the Emperor on the occasion of his visits to Etajima at the time of graduation, the Imperial photographs, an Imperial rescript, and various other Imperial gifts. In the upper storey of the hall in a place of honour is a large marble slab, which bears the name of every cadet who has subsequently been killed in action. Here also are enshrined the personal relics, blood-stained clothes, etc., of famous naval heroes. The cadets are thus constantly reminded of their duty to their Emperor, and are instructed that to have their names included in the list of those who die for him is the greatest honour that a naval officer can achieve.

To teach naval tradition and *esprit de corps*, a naval museum was started by Admiral Taniguchi when he was President of the College in 1923-24. Starting from small beginnings, this museum is now regarded as being a most important factor in teaching the cadets a knowledge of the history of their Navy and its deeds. Particular stress is laid on the personal heroism and exploits of individual officers and men of all ranks, and the collection, which contains a representative selection of pictures, books, and relics of all kinds, is especially rich in mementoes illustrative of these.

Development on the physical side is obtained by physical drill, fencing, wrestling, gymnastics, boat pulling, swimming, etc. Rowing and swimming are regarded as being specially important, and once a year all cadets take part in an eight-mile pulling cutter race to Niyajima and a six-mile swim round Eta Uchi.

To teach cadets to take hard knocks with good temper, a special game called "*Sotaoshi*" (or "Downing the Pole") has been evolved at Etajima, and is played two or three times a month. For this game, the whole of the cadets are divided into two sides, drawn up about 100 yards apart. Each side has a small flag, mounted on an eight-foot pole, set up in the ground. The object of the game is for each side to protect its own flag and pull down that of the opposing side. There are practically no rules; each side details so many defenders and so many attackers, and, on the word "go" a free fight takes place in which hands, feet, head or any other part of the body is used. Rough as the game sounds and looks, few casualties occur beyond a crop of black eyes and bruises.

The physique of the cadets is excellent, and, hard as they are worked in study and play, a close inspection reveals none of the signs of overstrain which are so noticeable in the average Japanese schoolboy of to-day. Whatever may be their educational attainments, the cadets are of a fine, athletic, alert type, primed with patriotism and with a sense of duty far beyond that of the average Japanese boy of similar age.

It is quite evident that the naval authorities are determined to preserve in the Officer Corps the spirit and tradition of the Samurai, and that they regard these qualifications as taking precedence to educational ability.

In order, however, that the educational standard shall be maintained, it has been decided to increase the length of a cadet's course in college from three years, to three years and eight months.

Entry of Cadets. Cadets are selected from students who have reached a standard of scholarship equivalent to that of the fourth year of the Middle School. An examination is held once a year, simultaneously in all the principal towns of Japan. The examination is conducted by the Education Department of the Ministry of Marine. A rigid physical examination is made. The age limits for candidates are 16 to 19 years.

Organization of Cadets. For disciplinary and all other purposes, except educational, the cadets are divided into twelve divisions, each division being under a divisional officer who is a lieutenant-commander or commander. The whole are under a commander, who is responsible for the entire corps of cadets. Each division has a cadet captain and a junior cadet captain, selected from the senior cadets. This divisional system is regarded as forming the basis of the organization, and differs from the majority of systems in that a division contains boys of all stages of training. For academic purposes, the cadets are divided into 1st, 2nd, 3rd and 4th years (or terms), and each year is under the charge of an officer who is responsible for their progress in education. Year (or term) associations are particularly encouraged, with the object of the formation of close ties of comradeship which can be maintained in after life at sea. In addition to the twelve divisional cadet captains and their juniors, four cadets, selected from the senior year, are on duty weekly under a discipline officer for the purpose of the general supervision of the cadets as a whole. This duty is taken in rotation by the cadets of the senior year, and is useful not only in maintaining discipline but also in teaching responsibility and sense of duty to the older cadets.

Daily Routine. Reveillé is at 05.35 (06.20 in winter) and rounds and lights-out at 21.45. There is a "special period" each day from 14.00—15.20 to afford the cadets the opportunity of pursuing any individual bent desired, such as reading, sports, manual labour, gardening, etc., the object being to encourage the development of initiative and promote culture. Cadets clean out their own dormitories and class rooms, and scrub them out weekly on Saturdays. Cadets sleep in beds (not hammocks). The dormitories are very crowded, but epidemics are rare and it is stated that the health of the cadets is very good.

Hours of Study. A large amount of time is devoted to the study of English, which is the first foreign language. All notices, names of

rooms, buildings, etc., throughout the College and grounds are written in Japanese, English, French and German.

Training Cruise. Cadets enter the College in April, and after completing their course of three years and eight months, are rated midshipmen and drafted to the training squadron for a period of nine months. At the end of this time they become acting sub-lieutenants and proceed to the gunnery and torpedo schools for their sub-lieutenant courses.

Staff of the College. The staff consists of the President (a vice-admiral), 45 officer instructors, 4 special service officers, 23 civilian professors and two Englishmen as instructors in English. The position of President is invariably filled by an officer who is destined for the highest positions, and is one of the most coveted appointments in the Service. The remainder of the officers are equally carefully selected and although Etajima itself is disliked because of its isolation, everyone is eager to go there for the honour of having been selected for the staff.

THE SITUATION IN THE MIDDLE EAST

BY SIR E. DENISON ROSS, C.I.E., Ph.D.

On Wednesday, December 11th, 1929, at 3 p.m.

MAJOR-GENERAL SIR PERCY Z. COX, G.C.M.G., G.C.I.E., K.C.S.I.,
in the Chair.

THE CHAIRMAN, in introducing Sir Denison Ross stated that for the last thirteen years he had been Director of the School of Oriental Studies attached to the University of London. Before that he had held the position of Principal of the Calcutta Madrasa. He could justly be regarded as one of the foremost Oriental scholars of the day, also a great Oriental linguist, while he had written much on Oriental subjects. In addition he was a great traveller; before going to India he had travelled extensively in Central Asia and in collaboration with Mr. F. H. Skrine published a book, "The Heart of Asia," which contains an historical survey of Russian Turkestan from the earliest times.

LECTURE.

I HAVE divided this lecture into two parts, the first dealing with things seen, and the second with general considerations on the Eastern question. I would further add that I experienced some hesitation, as a civilian, in lecturing to this Institution, because, in addition to the obvious fact that I could not speak to any purpose on purely naval and military matters, I feel that things are now moving so rapidly in the Near East that the impressions gathered during a three months' tour made at the beginning of this year are already growing out of date. Indeed, it is impossible to say from moment to moment what the actual situation may be. It is, at any rate, certain that, during the six months which have elapsed since my return from the East, the political situation has greatly altered. Consequently, many of the conclusions at which I then arrived have had to be modified considerably. In view of these facts, I have determined to touch somewhat lightly on the present situation in the Near East, and to devote more time to abstract thought on the relations of the East with the West.

The latter is a subject on which lectures are not often given. Normally, lectures cover the ground of geography, of statistics, or of strategy. To-day I thought it would be more interesting for me to attempt to put together some ideas on the greatest of all world-problems, namely, the relations between East and West, which may be compared with a twirling kaleidoscope.

It is well known that the deliberations of the Allies during the war, and still more after the war, have contributed very largely to the wholesale alteration of the map of the Near East. I say "very largely," because some of the plans they set out to put into effect after the war could not be realized exactly in the manner intended. That was mainly in connection with a scheme to place the Arab countries, or at any rate Western Arabia, under the rule of a member of the Hashimite family. That plan failed, owing to rapid changes in the political situation in Arabia itself. The failure of this particular scheme, however, left untouched the general policy of the dismemberment of the Ottoman Empire, the latter event having contributed in the largest measure to the change in the map.

Apart from the new kingdoms and new frontiers which have thereby been introduced, there are important roadways, railways and airways to be noted. It was the Great War itself rather than any planning of the Allies which created such a remarkable revolution in the ways and communications of the Near East, and it is interesting to reflect that Syria, Palestine and Iraq passed, without the long period of transitional development experienced in Europe, with one bound, as it were from the caravan to the most modern means of transport and locomotion. During the present century mechanical invention has moved fast enough to upset our own moral equilibrium, and it has often been said that our mentality is unable to keep pace with these rapid material developments; how much more must this be true of the inhabitants of those countries where, in 1914, roads were few, railways non-existent, and aeroplanes undreamed of!

The countries of the Near East—Syria, Iraq and Arabia—were, as you know, part of the Turkish Empire, as was also Egypt in a restricted sense. With the dismemberment of the Turkish Empire rulers and forms of government had to be found for all these countries, and so there came into being the various new kingdoms and mandated territories. The same policy had been adopted in principle in the case of the dismemberment of Austro-Hungary, and the gospel that was preached most loudly by the Allies was that of self-determination. But when theory passed into practice, though self-determination was granted to the Balkan States, it was denied to the Arabs who had formerly made part of the Turkish Empire. In order, however, to help these newly-formed states along a road leading to ultimate self-government, Syria was placed under the care of France, and Palestine and Iraq under the care of Great Britain. Egypt became more or less independent, and Western Arabia entirely so.

I will now refer quite briefly to the new régime in Turkey. As I have, unfortunately, not visited her since the war, and as things have moved

more rapidly there than elsewhere, I cannot speak at first hand. She, perhaps more than any other country, has been able to put into practice self-determination; and this she has done most whole-heartedly. Mustafa Kemal has, thanks to his great prestige and his remarkable personality, been able not only to carry out the ideas of Enver and Talaat Pashas but to go much further. He has attempted to change the whole aspect of Turkey, both socially and religiously, and, without any regard for the past or for the present generations, is establishing a new order of things for the next. In introducing the Swiss Code in place of the Islamic, and the modern Latin alphabet in place of the Arabic, he has attacked the very foundations of Islam, and one wonders how deep the religious sentiment of the Turks really lies.

It is interesting to turn from Turkey to the new Wahhabi Kingdom of Arabia—that is to say, the new larger Wahhabi Kingdom of Arabia—where exactly the opposite spirit is at work, for here we see a strong reaction in the direction of puritan, orthodox, Islam. I wish to say one word on Islam in passing, because I am supposed to have suggested that Islam was probably coming to an end. I do not think that any of the great religions of the modern world will die out in the countries where they are practised. The reforms of Mustafa Kemal certainly do not mean the end of Islam in Turkey; any more than the drastic measures of the Bolsheviks will end Christianity in Russia.

It is interesting to think that Ibn Sa'ud, who is the strictest Muslim of the strictest sect, has no prejudices against modern institutions, provided they do not run counter to the tenets of Islam. For instance, he allows pilgrims to motor from Jedda to the outskirts of Mecca, which might have been considered a very unorthodox method of going on a pilgrimage, but I suppose he thinks that the hardships of the actual pilgrimage in and around Mecca are enough for the ordinary Muslim. He is also doing a good deal to improve education. Of course, there, as in Iraq, the official language has been changed from Turkish to Arabic. That means that it is necessary to revise the whole system of elementary and primary education, and in addition to provide new text-books, while it is now the rule to draw up all official documents in Arabic in the place of Turkish. That must take a long time to accomplish; and in Iraq, whereas formerly there were plenty of people educated in Constantinople, where they received a good education, it is now needful to employ a generation which has not had such advantages. I could say a good deal about Ibn Sa'ud, and I think it should be generally realized that although he has made a triumphal progress, and is firmly established in Mecca, he is experiencing an exceedingly difficult time; indeed, it would never be surprising to hear that he is in serious

trouble. I regard him as undoubtedly one of the greatest men Islam has produced, and we hope there will be no great disturbance of the peace in that quarter.

Iraq, like Arabia, had been for 400 years ruled from Constantinople, and, like Arabia, is a country of Arabs ; but while the present kingdom of Arabia is actually only an extension westwards of the Wahhabi kingdom of Nejd, Iraq must be regarded as a newly-founded state, which offers us the rare opportunity of watching a new nation in the making. Iraq owes a good deal to the Great War economically, quite apart from the independence she has gained by the Great Peace. A state so recently established is naturally ill-provided with capable and experienced officials, and on the administrative side she has required the aid of British advisers. On the military side, the integrity of the country may be said to depend at present almost entirely on the Royal Air Force, with its headquarters at Hinaidi, whence it is able, at a moment's notice, to cope with any threatening attack. Armoured cars attached to that Force also play an important part in that connection. Whenever between Basra and Baghdad there is a rumour of Arab raiders approaching, the comforting sight of an aeroplane and an armoured car means that the traveller will complete his journey in safety. Internal order is preserved by a most efficient gendarmerie, largely recruited from the disbanded Assyrian battalions, who patrol the country far and wide. The Assyrians turned out marvellous soldiers, and British officers commanding them have never tired of singing their praises. It is from these disbanded battalions that the gendarmerie is mainly recruited. Nothing is more impressive, when travelling through the desert by car, than the sudden appearance on the horizon of these smart, well-mounted men, who generally move about in pairs. Iraq has made such good progress in setting her house in order that she is shortly to be admitted to the League of Nations, but I take it that when the British mandate has been withdrawn those who govern Iraq will still desire our help as individuals. But the Englishmen she employs will then be the servants of the Iraq State, and not officers and officials deputed by the British Government. I must not omit to mention King Faisal, who has shouldered his responsible duties with royal dignity, and is, in fact, in appearance, manner, bearing, conduct, "every inch a king."

The situation in Palestine hardly bears discussion at this stage. When I was in Jerusalem all seemed for the best in the best of possible worlds—indeed, Palestine appeared to have benefited more by the Great War than any country in the Near East. Roads and communications were excellent, and Jerusalem itself seemed all peace and order. One could not help observing the absence of the military element ; it

was then considered possible to rule the country without soldiers. Recent events, however, have shown that everything depended on the good behaviour of the Jews and Arabs towards each other.

In Syria the rivalry between nations and religions is even more acute than in Palestine. Each group, Druses, Muslims, and so on, has in turn risen in revolt, and the French have had to maintain an army many thousands strong in order to preserve the peace. Not until the various elements of the population unite in accepting the guidance and control of the French officials can we hope to see a constitutional assembly established in Damascus and good order in Syria.

Of Egypt it is difficult to speak, as the situation changes from day to day. During the visit of King Fuad to this country a more or less unexpected crisis occurred which altered the whole complexion of the situation. It led not only to the resignation of Lord Lloyd, but to the curtailment of His Majesty's visit. It would take me too deeply into politics to describe this crisis in detail. I will just state that Mahmud Pasha as Prime Minister had been working without a constitution, and in this capacity had done a great deal for Egypt. But the extreme politicians of that country, naturally ambitious for office, were chafing under what they called a "dictatorship." The new draft treaty with Mr. Henderson meant the re-establishment of the constitution and the calling of a Parliament, and this involved the resignation of Mahmud. The Parliament when elected will presumably proceed at once to consider the new treaty, the terms of which are so liberal that I think it hardly likely that it will be rejected; but this should not be taken as a prophecy.

I cannot refrain from saying a few words regarding King Fuad himself. He is a king of whom I have had the privilege of seeing a good deal. He is a very remarkable man. He is a real patron of learning and of the arts. He has done a great deal for his country, and I was surprised to find in what close touch he stands with the many innovations and reforms which are doing so much for modern Egypt. I think that so long as he remains King, he will continue to do a great deal of permanent good to that country, especially in the direction of culture and art. I am convinced that he is and has been determined to adopt a most friendly attitude towards England. While Mahmud was in power this was a simple matter. But with the change of Prime Minister he is placed in a quandary, for while he is bound to support the constitution, and naturally does so, this may not be so consistent with an official demonstration of friendliness towards this country.

The great crux of the Egyptian question is, of course, the presence of a British garrison in Cairo. If we place ourselves for a moment in

the position of an Egyptian we shall readily understand that he does not particularly enjoy the sight of foreign troops parading the streets, and of enormous barracks occupying one of the finest positions in the city. It is not, however, for me as a mere civilian to discuss the strategic importance of maintaining a British garrison in Egypt. If our only goal were peace, order, and the prosperity resulting therefrom, this could best be attained by a strong garrison at the bridgehead of the Kasr-in-Nil. Can the Egyptians supply such a garrison of reliable troops? If, on the other hand, the chief aim be the gratification of nationalistic ambitions, these can only be satisfied by the withdrawal of all foreign troops and advisers. It has not yet been shown that Egypt can herself supply all that is required, in the realm either of law and order or of economics. It is many centuries since Egypt walked alone; and her new status as an independent kingdom has so far only given her time to develop her national instincts. As a modern Muslim state she is young and inexperienced, the plant has been forced, and if the protecting glass is suddenly removed the plant may wither in the open air. I would, however, like to stress the fact that to-day there is in Egypt no lack of capable and efficient men, including King Fuad himself, who have the interests of their country at heart; but there is lacking a responsible middle-class capable of realizing that neither the pyramids nor any other enduring structures were built in a day. How Egypt is governed, and by whom, could not possibly concern us did the high road to India still run round the Cape; but seeing that three-quarters of the British Empire uses the gates of Suez for commerce, travel and correspondence, the Suez Canal is so much our concern, that it forms the crux of the whole Egyptian question, that is, how to guarantee this short cut through the desert without hurting the susceptibilities of the Egyptian people.

Of new Persia I could speak at greater length than of any other country I visited, because it is the country in which I am the most interested. It is thirty years since I last visited the country, and the changes that have taken place in the interval filled me with astonishment. Most of these changes, however, are comparatively recent, and came about either during or since the Great War.

The greatest change was in the mode of locomotion. Thirty years ago there was already a road, built by the Russians, along the flat country between Qazwin and Teheran, but that was the only road I saw. However one can travel by car between all the chief towns of Persia, while the Junker planes will convey one almost anywhere in safety. I believe they have never had a single breakdown. They used to start from Kasr-i-Shirin on the Persian frontier, but now, I think, they start from Baghdad itself. In the people themselves I found very

little change, and I was very happy to find that to be the case, because the Persians are among the most charming people in the world. I did find a change in their clothes ; they have—one and all—to wear a kind of messenger boy's hat, because there is an idea that it will stamp the people as one nation if they all wear the same kind of hat.

Internal changes are taking place in the preservation of law and order and in reducing the influence of the fanatic clergy. The present Shah is a strong ruler, and his ambition is to bring about moral reforms and economic progress without interference or help from foreign Powers. The Persians have always retained their national character and independence, and, thanks in some measure to the rivalry of Great Britain and Russia, she alone, of the Islamic countries engaged in the Great War, has retained her pre-war frontiers. Great strides are being made in education, in the improvement of the towns and in the protection of the highways ; and it is important to remember that if Persia moves slowly, she is working out her own salvation.

Now I would pass to a totally different subject, namely, the role of Great Britain as one of the Powers interested in the East. I cannot, of course, enter into the history of commercial intercourse between the East and West ; the story is based originally on overseas trade with the East. Three basic facts affect this whole problem. The first is how the carrying of Eastern commodities to Europe passed into the hands of Western nations, after having been in the hands of the Eastern nations. The second is, how these commodities, which formerly comprised only luxuries, such as silk and spices, came to include the necessities of life. The third, how, in turn, the East came to be dependent on necessities imported from the West.

Down to the beginning of the XVIth century the merchandise of the East was carried to Red Sea ports by the merchants of the East, and from those seaports by the merchants of Genoa, Leghorn, Venice and so forth, in European vessels across the Mediterranean. But, however great this traffic may have been, European traders had no interest in the countries where they shipped the goods or whence the goods came, beyond the establishment of warehouses at the sea ports ; or *fondacas*, to use the old word. At Alexandria there were *fondacas* of most of the big trading nations. These were like enormous hotels, having even their own churches, and a regular establishment where people could live, quite apart from the warehouses. There was no exchange of commodities ; the only thing their ships did bring, in later times at any rate, was wood from the Greek islands and from Cyprus for building ships, both for the Mediterranean and the Red Sea ; and for the Red Sea fleet the wood had to be carried up the Nile to Cairo and thence dragged overland across the sand in sledges to Suez.

With the discovery by the Portuguese of the all-sea route to India, the spice trade at once assumed a new aspect. It was no longer sufficient to possess merely a factory or depôt on the Indian coast. Forts had to be built to protect the factories, and men-of-war had to be sent to fight the Arab merchantmen who had formerly enjoyed a monopoly of the spice trade from India to Egypt; and then it was that the Portuguese became interested in the people who ruled along the West coast of India. In the course of the following century the Dutch and the English followed in the wake of the Portuguese pioneers, and later on the French. It was the establishment of factories by the English merchants which led to the ultimate foundation of British India. It seemed inevitable that some Power with a fleet should gain a predominant interest in India, and that the Power which did so should gradually acquire territorial rights beyond the mere occupation of seaports. Having thus established herself as the first Power in India, and having practically destroyed French influence in that country, it became the obvious business of England to protect her high road thither, and for this purpose Malta was acquired in 1800. It was with the landing of Napoleon in Egypt in 1798 that the latter country first came into contact with modern Europe. It was Napoleon's Egyptian campaign, whose ultimate object was India, that long before the building of the Suez Canal led England to realize that in order to protect India she could brook no European rival in Egypt. And thus began our concern in the destinies of that country: a concern which increased a thousandfold after the building of the Canal. I am not proposing to relate the history of Egypt during the XIXth century; I merely wish to indicate how the necessity arose for our interference in her affairs, and this gives rise to the great problem as to the morality of exercising control in one country in order to safeguard one's interests in another. England, in short, without any desire to rule Egypt, became intensely interested in the good government of that country; and the history of Egypt during three centuries of Turkish domination was enough to show that without interference by the most interested party good government could not be guaranteed. I have already dealt quite briefly with the present situation in Egypt, and only touch on the subject again in order to indicate how British intervention in that country came about, and to show that, apart from all questions of right and wrong, our commitments made this absolutely necessary.

The gospel of self-determination, of which we have heard so much and seen so little since the Great War, is replete with inconsistencies. The main reason why European Powers cannot to-day regard with indifference the form of government prevailing in various Eastern countries—apart from the question of Europe retaining such Oriental

territories as she has won mostly in battle—is the paramount necessity for maintaining a free flow of commerce between East and West: that, in fact, is the text of my lecture. For any breakdown of the existing system would inevitably lead to an economic catastrophe affecting the whole world. So if any Oriental says: What is your justification for troubling about the East; why do you want to meddle in her affairs? We may reply that it is because our interests are identical, and the point has been reached where the whole economic fabric of the world rests on the free flow of goods between East and West. Such must be the excuse which the West offers to the East, and it is for the East to learn gradually to do for herself what Europe feels constrained to do for her at the present time.

It is quite natural that the intelligenzia of the East should entertain feelings of bitterness, resentment and even hatred towards the man from the West who wishes to dictate the manner of Eastern government. But I think it is not only racial pride which inspires this dislike; there is also a subconscious element of envy. For however proud the Oriental may be of his own history, religion and institutions, the intelligenzia have perforce themselves to admit that, during the last 500 years at any rate, the people of Europe have been singularly blessed in things material and physical: advantages which may in a very great measure be attributed to climate. One can be envious or not of another person who possesses wealth which one might by luck one's self obtain one day, but the kind of envy regarding another's good fortune which can never come one's own way is of a totally different category. First and foremost among the special blessings of the West I would place a temperate sun.

I do not wish to claim that all countries East of Suez have bad climates; Turkey is a notable exception. But as a whole the Near and Middle East, as well as India, offer serious physical drawbacks and discomforts which are never experienced in Europe. And climate is the one thing you cannot change. It is possible, thanks to Sir Ronald Ross, to reduce the risks of malaria. It is feasible to keep comparatively cool in a house with the help of electricity. It is practicable to obtain protection against the rays of the furious sun or against animal pests. But it is impossible to escape from the debilitating effects of the tropical and sub-tropical summer. I cannot help thinking that underlying the antagonism of Oriental politicians to the West there is this envy of climate which adds fuel to the fire.

Finally I must refer to an arrogance and outward assumption of superiority, which has only too often been a fault of Europeans in their dealings with Orientals, as in former times was the case with Orientals

in their behaviour towards Europeans. Witness the bad treatment which ambassadors received in Turkey from certain Sultans, and the attitude of the early Manchu Emperors towards European missions sent to China. I think, however, that a great change has come over us all in recent years in this respect, and that we are more apt than formerly to cultivate that courtesy for which the East has always been renowned.

Having thus explained, however imperfectly, how and why Great Britain became involved in the affairs of Oriental countries, I should, in conclusion, like to attempt to explain how the East, which started so much earlier in the race than the West, came to a standstill in scientific and material progress, and the causes to which this arrestation may be attributed. In this connection it is very difficult not to introduce India; for although cultural India stood still centuries before the birth of Islam, the causes have more or less been the same as in the case of the Islamic countries. Muslim civilization, the result of a blending of a Bedouin stock with the cultured people of Persia and Syria—to which was superadded the science of Greece and India—reached its apogee under the early caliphs of Baghdad in the IXth century. Since then there has been little progress in Muslim literature, and no advancement in science. Relying on his own books, the Muslim of to-day possesses nothing by way of science or economics which was not accessible to his co-religionists in the IXth century. Only in the arts, in architecture and the decorative arts and so forth has progress been achieved; in learning there has been no advancement. Of course, I do not mean to suggest that Islam produced no learned men—one has only to think of Avicenna, Ghazali, Ibn Khaldun, al-Biruni, and hundreds of others—I only mean that their learning, though profound, remained confined within narrow limits. The Arabs and the Persians were great travellers;—and we must not forget that the compass came to us through the Arabs—but their knowledge of geography was for ever based on the traditional subdivision of the world lengthwise into seven climes. The builders of the Mosque of Omar and of the Alhambra were unable to draw an intelligible map. These facts, I think, present a picture of Islamic culture in a nutshell; and so it is with all the sciences. In mathematics, medicine and botany they reached a certain point and then stood still. How are we to account for this strange phenomenon? But then we also have to try and account for the fact that Europe, which stood still through the whole of the dark ages, suddenly moved on.

To my mind, this state of affairs is easily explained by the reverence in which the scriptures and tradition were held. All Muslims were bound by accepted theories, which were so sacrosanct that it never occurred to the man of science to shake off the fetters of the past and to set out as a free man and investigate fundamentals for himself. It

all amounts to this: that religion in the Near and Middle East formed so strong an element of education and daily life that mental progress was arrested and mental activity confined to the learning of the ancients. Speculation was confined to things spiritual. Islam never produced a Newton or a Darwin. It was the tyranny of the written word that called a halt.

Another tyranny to which I have already referred, is the tyranny of the sun, which during the summer months of every year reduces a man's activities to one-half. With regard to that climatic question, I would only ask you to consider how extraordinarily healthy Indian boys, Indian students, Indian chiefs if you like, are when they come to England. The rigours of this climate do not affect them, but the advantages of this climate do affect them, and I have known students who, having been for two years in Europe, without a single bout of fever, almost weep at going home, knowing that in India they are almost sure to have fever from time to time. When an Englishman goes to India he is surprised to find that it is the Indians rather than his own fellow-countrymen who go down with fever. I do not say there is no fever among the English, but they suffer much less than the Indians, partly because they carry with them a stock of blood warmed by the European sun that seems to counteract the effects of the great heat, and partly because they live under healthier conditions. So by the tyranny of the sun I mean the way in which the people who are born under that sun suffer therefrom.

In conclusion, I should like to say a few words about the awakening of the East since the Great War. I do not wish by this phrase to suggest that there was no such awakening before the Great War, because we have seen in recent times the colossal progress made by Japan, the demand of India for self-government, the establishment of a republic in China, and the "Committee of Union and Progress" in Turkey. The defeat of Russia by the Japanese no doubt made a great impression on the East, but it was the stupendous conflict between the greatest civilized Powers of the West which did most to change the attitude of the East towards our so-called civilization. The extension of the war over half the habitable globe brought all men down to a common level. What did the vaunted progress of the West represent if a four years' struggle were possible at the beginning of the XXth century? "Surely we can manage our affairs as well as that!" we can imagine the Oriental saying. Such thoughts, while diminishing the respect which, however grudgingly, the East felt for the West, did not affect his attitude of mind towards European methods of administration, but rather made the Oriental feel that he was fit and ready to adopt them. These sentiments meant, in a word, the downfall of despotism and the desire to replace it by constitutional and representative government.

The history of the East has hitherto been the history of despotic power, and I am sufficiently conservative to believe that, in the East at any rate, government by a good despot is the best form of rule.

The East has been stirred to its foundations by new ideals, and it now desires Western institutions, if possible without Western guidance. There is probably no great nation East of Suez which would not rather govern itself anyhow than be ideally ruled by an alien power. That is at least true of the Arabs, Egyptians, Persians and Hindus. The Kurds and the Muslims in India are possible exceptions. The Afghans seem to like independence but not single overlordship. They hope to find freedom and salvation by imitating what is to them a totally foreign system of government painfully evolved over centuries of struggle and debate, as practised by the masters of whom they would be rid. To them the system is artificial and unnatural, and is apt to bring to the front two types of individuals: one clinging to national tradition and abominating all that is Western; the other throwing tradition to the winds and hating only the Westerner whose methods he would adopt. Many of the second type, of course, desire to reduce the "distance" which has hitherto been so strongly felt between Asia and Europe. It is, however, precisely such elements of an Eastern population who most easily lose their respect for European culture, while they are most ready to adopt only those features of that culture which they can employ against the European.

THE CHAIRMAN:

Sir Denison Ross has covered a vast field in the most interesting way; he has put forward not a mere travel lecture or a lecture for scholars only, but a string of original ideas and original aspects of phenomena that he has observed during his travels and his experience of the last thirty or forty years in Islamic countries. I agree with the way in which he has summarised most of the aspects of these problems, although there are one or two points I would like to speak about.

Sir Denison spoke of the extraordinary way in which Mustafa Kemal has been able to defy Muhammadan tradition and law, and every other factor in the Muhammadan religion. But, on the other hand, he said that it is not true that Islam was likely to come to an end; on the contrary, in other parts of Islam there has been a considerable reaction towards religion, and he referred to the Wahhabi movement in Central Arabia. Well, speaking from my own experience, which extended over many years, I consider that, while to a certain extent Ibn Sa'ud has necessarily used for the advancement of his political ambitions the religious factor as a weapon, I think he himself has very broad ideas of what he can do and what he cannot do under Islam, and that he is only too ready, as far as it can be done, as Sir Denison says, without coming into conflict with Islamic law, to take advantage of Western civilization and Western inventions. But, of course, we have to remember that he has an extraordinarily bigoted, ignorant, people to deal with, and he has to go very slowly and very cautiously. And in his case, as well as in Persia and in Turkey, the dangerous aspect of the present

conditions is that in each case progress is practically dependent on one man. These men are all great characters; they have arisen during the past decade either directly from the war or from other cataclysms. So we have to watch the situation, not necessarily with apprehension, since there is always the possibility that if one of those men were to fall, we do not know what might be the result. We can only hope for the best. The great essential is that they should be given time to consolidate their work. I think we all respect and admire the wonderful work that the Shah of Persia and Mustafa Kemal and Ibn Sa'ud have done, and can only wish them long life to consolidate their efforts.

With regard to Iraq, with which I have been personally connected, that country is now about to enter the League of Nations, for we have given Iraq an undertaking to support its application for membership of the League without reserve next September. There are many who think that Iraq is hardly yet ripe for admission to the League. On the other hand, there has been such remarkable progress in the last few years among these young nations, that the position now is that we cannot force our assistance or our control on any of them. We must, to a certain extent, allow them to try and play their own hand. If they fail, I think they will readily come back and ask for our assistance. We have had several instances of that. With regard to Iraq, we have to remember that, in 1920, when a violent newspaper campaign had broken out, demanding that we should cut our losses and retire, it was either a question of evacuating and letting Iraq go back to the Turks, or of setting up a national government and letting them make their mistakes and try and evolve order gradually out of chaos. The latter course was adopted. Looking back over these nine years and seeing what has passed, and is in progress in Iraq, I, personally, cannot think of any other plan which would have succeeded better. There was a good deal of doubt, too, about allowing King Faisal to accept the monarchy of Iraq; other candidates were in the field, and we had to consider them all, while Iraq had to choose. There, again, I cannot think of a better candidate than King Faisal has proved. We have to be tolerant, patient and indulgent with them. In our coming Treaty with Iraq, we hope that we shall make such conditions as will safeguard both our own interests and theirs; there is, therefore, no reason why firm friendship and alliance between the two countries should not exist.

In Syria the position is very different. In Syria the French had a previous tradition and a previous history which it was very difficult to obliterate. The French have not been able to move so quickly as we have, and the rapidity of our progress has been necessarily somewhat of a difficulty to them; but we hope that there, in the same way, in course of time there will be evolved a constitution, and that Syria will follow Iraq as an independent nation.

In all these countries—Egypt, Syria, Iraq—one of our difficulties is that while nine-tenths of the population are unsophisticated and ignorant, and only want a good government that does not tax them too much, there is a very small element of *intelligenza*, including extremists, of course, who look upon Western standards, and think that they can compete with them, while they look with jealousy upon Europeans who are doing work which they think they can do. Well, as things now are, no European nation will spend money teaching one of these small nations. They have to go their own way under advice; they must be given their chance. In Iraq we shall find no doubt that, when the new Treaty comes, many of our British officials who have done wonderful work there will gradually either become servants of the Iraq Government or be gradually reduced to give place to Iraqis; that is a factor which we have to recognise.

The customary votes of thanks to the Lecturer and to the Chairman were then passed by acclamation.

A MIDSHIPMAN IN THE EGYPTIAN WAR

BY LIEUTENANT-COMMANDER HUGH H. PAYNTER, R.N.
(Emergency List).

IT is a long cry from 1930 back to the war in Egypt of 1882, and the white and blue medal ribbon is not so common now as it was in the early 'eighties indeed you will only see it in any numbers at a Court or Levée, when old "dug-outs" appear.

After 1882 a very large proportion of the forces had the Egyptian medal and the Khedive's bronze star; too large, some of the old school thought, and I remember when the medals arrived for my ship, H.M.S. "Northumberland," and the officer of the watch recorded in the log "presented medals to the Ship's Company," the Captain altered this to read "served out medals."

For me the war began at Malta. The Channel Fleet had been for some little time in the Mediterranean, and there was great excitement when the "Achilles" was ordered away. She steamed out of the Grand Harbour in great style. All her guns were run out, and trained as far forward as possible, while her band played "We don't want to fight, but by Jingo if we do."

Our departure, in the "Northumberland" was not quite so dramatic, but we had the distinction of having to transport the whole of the 38th, South Staffordshire Regiment. The officers and men were put up as best we could, while the quarter-deck was taken up by two large pontoons in which were the regimental horses. Our normal complement was about 1,000, and this was now doubled, so of course the accommodation for our guests was limited, but all seemed to settle down very happily and in due course we arrived at Limasol, Cyprus, there to await orders.

We did not know at the time that the idea was to keep us handy until after the bombardment of Alexandria; but in due course we arrived at that port, only to find that all the excitement was over. However, we heard about Beresford's "plucky little 'Condor,'" whose shallow draft had enabled her to get close in under the shore guns, also of the gallantry of the gunner of the "Invincible," which earned him a V.C., and other thrilling incidents, and, after disembarking our troops, we were allowed to go on shore, and view the havoc which had been caused by the guns of the fleet. Our only regret was that we had been unable to take a hand in the business ourselves.

We found the whole long line of batteries between the town and the sea had been demolished. In many cases guns were overturned, and destruction, corpses and wreckage were visible everywhere; yet only a short distance away the Café Paradiso flourished, with endless patrons from the forces.

The villain of the piece was Arabi Pasha, who, we learnt, had stirred up a ferment through the whole of Egypt, but with the fall of Alexandria he had for the time being disappeared. Now, however, the "North-umberland" began to take an active share in the proceedings. Our first move was to Port Said, always a place with an unsavoury reputation. It was, in those days, a sink of iniquity probably unequalled in any part of the world. It was not safe to walk down to the ship's boat alone in the dark, from any of the cafés, all of which ran faked roulette tables.

Before long, however, we were ordered to proceed a little way along the coast and to take Fort Ghemileh. Here, we thought, was war at last: real war. But we were doomed to disappointment. Late in the afternoon we crept close into the shore, till there were only a very few feet of water under the bottom, and prepared for action. We had twenty-seven heavy guns, amongst them one which we never used. This was a 9-inch 12-ton gun, situated in the Captain's quarters, and boxed in with bulkheads which formed the different cabins. On this occasion, however, it was felt that we ought to be prepared to use our whole armament, so all partitions were cleared away, the gun was traversed to one of the ports, and a scaling charge fired to clear the bore thoroughly. This was too much for the enemy, who doubtless thought the bombardment had begun. Down came his flag, leaving us nothing to do but turn in for the night, and land and occupy the fort at our leisure, in the morning.

Back to Port Said, for another spell of waiting, and then at last something really did happen. I was ordered to proceed to Ismailia with two field guns in charge of a Lieutenant. Ships' steamboats took us up the Canal to Lake Timsah, where we found the "Orion" and the "Carysfort." We took up our quarters on board the latter ship.

Arabi Pasha's camp had been discovered at no great distance from Ismailia, and a constant watch was kept on him from the masthead of the "Carysfort." One of her 64-pdr. guns had been remounted on an extemporised mounting, which enabled it to be fired at a high angle of elevation, and so bear on the camp at a range of 4,200 yards.

Matters proceeded quietly for some days and then we suddenly received orders to land. Every available man was sent, and we lay out all night forming a large ring on the shore side of the town. Nothing happened of any great importance, but we occupied the railway station,

telegraph offices, etc., and dislodged some of the enemy from positions in and near the town. There were of course other field guns besides those to which I was attached. These had crews of eighteen men, all of whom were required to drag the gun and limber, although only six were needed actually to work the gun; the remainder were armed with Martini-Henry rifles which they used when possible.

On one occasion we were bombarding some earth works, and one of the enemy was seen on the top of them, strutting up and down, in defiance. This was too much for one of my messmates. He seized a rifle from one of the men and had a shot on his own account. At the same moment, a bluejacket also fired and the man dropped. The midshipman handed the rifle back to its owner and made some remark about being "sorry he had had to shoot the fellow," when to his surprise, the man who fired at the same time, looked up and exclaimed: "beg pardon, sir, but that was my man." A somewhat heated altercation ensued, until the bluejacket said: "Well, look here, sir, you give me a bottle of rum when we get on board, and he's *your* man!"

After lying out all night daylight brought us the surprise of our lives. Instead of only the two ships we had left there, Lake Timsah was densely crowded with troopships, men-of-war and all kinds of craft. We learnt afterwards that it had been decided to shift the base of operations from Alexandria to Ismailia. Suez and Port Said were both seized, the Canal cleared of shipping, all dredgers, "gares" and telegraph stations occupied, and then our ships had come, closely following each other through the Canal, to the Lake.

Incidentally, we also learnt that the enemy had a force 2,000 strong in camp, less than three miles away, so that had we been attacked our party of 565 would have been in a somewhat precarious position. Luckily we were supported by a slow bombardment, carried out very successfully by the "Orion" and "Carysfort," while, in order further to discourage the enemy, false telegrams were sent to him from Ismailia, saying that a British force of 5,000 had landed.

With the completion of our task of protecting Ismailia, we looked forward to taking part in the advance, which we understood was now to commence; but this was not to be. We were sent to form part of the Suez Canal guard, which consisted of camps at various points between Port Said and Ismailia. I was to go with a Lieutenant R.N., and a Lieutenant of Royal Marines, with a total of 100 men, to a spot called El Guerish, not far from Ismailia. There I proceeded in a pontoon which we towed from the bank, to join the rest of the party.

Our days were spent in fortifying our camp, in drill, and shooting practice, and in keeping a look-out for Bedouins, who, however, never

materialised. We also employed our time in demolishing the ruins of a village close to the camp so as to avoid its use as cover by any attacking force. For this purpose we used battering rams in the old Roman style with excellent effect.

We were quite a happy party, the only drawback being that as we were nowhere near a "gare," or passing station, it was rare indeed that a ship ever made fast near us, so that we were cut off from fresh provisions, and had to subsist on tinned rations. But this was only for a time. We had not been long in camp before a flock of sheep arrived under escort from the camp next to ours, and we were instructed to provide a guard to take them on to the next one, as they were intended for the troops at the front. This was duly done, but when the guard and the sheep were well out of sight, a bluejacket came to me and with many a "Beg pardon, sir," told me that in some extraordinary way a sheep had got left behind! Knowing my men, I did not see anything at all extraordinary; however I pretended to be surprised, and regretted that the flock had by now gone too far to enable us to send on the lost sheep. We discovered that we had a butcher amongst us, so we had some excellent fresh meat. This established something in the nature of a precedent, and lamentable mistakes were constantly recurring when food for the front passed through our camp.

Meanwhile our troops had landed, and the advance on Tel-el-Kebir commenced. Guided across the desert by a naval officer they attacked one morning at dawn. We heard the firing, and soon after got the news that the position had been captured, and all was well.

So, at last, and with no particular regret, we broke up our camp, and I was sent to take the field guns to Ismailia. We had double gun's crews and it was a heavy pull through the sand. We slept the night in the Khedive's palace and got back to our ships the following day.

On returning to England my leave was interrupted by orders to proceed to London and join up with the combined forces to be reviewed by Her Majesty Queen Victoria. The Naval Brigade was made up of representatives from the ships which had taken part in the campaign, and London gave us a most gratifying reception. So, for me, ended the Egyptian war.

THE DEFENCE OF THE SUEZ CANAL

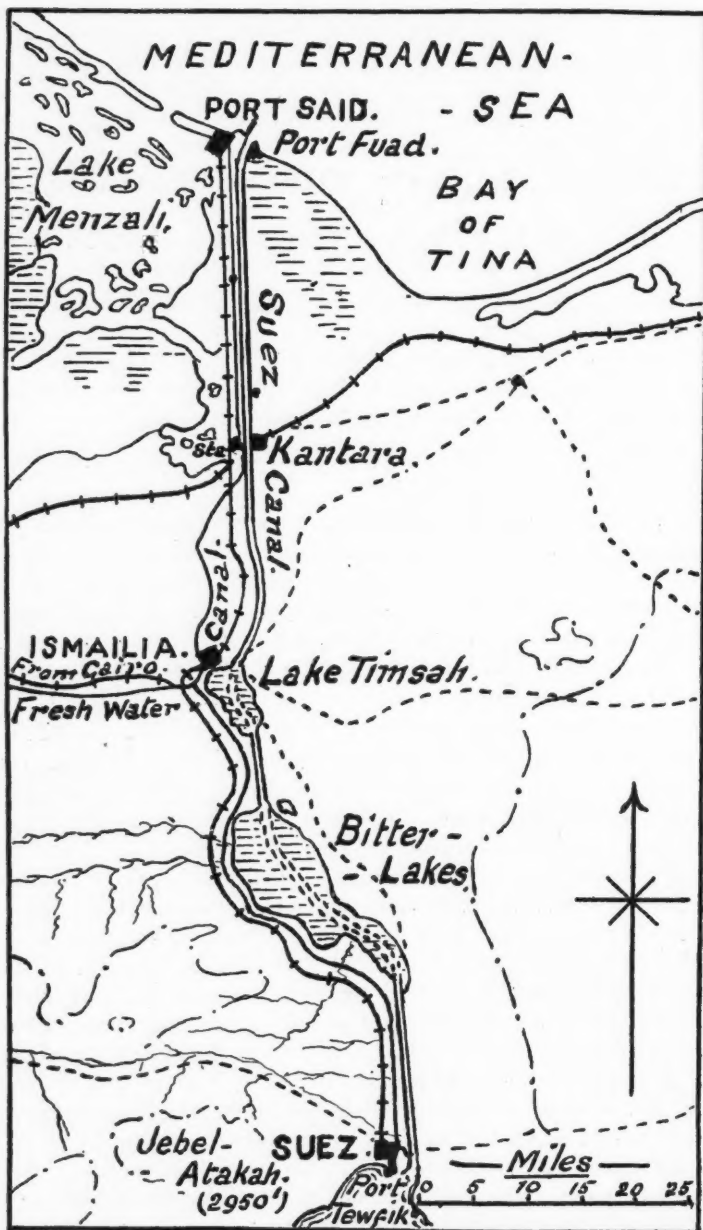
BY MAJOR E. W. POLSON NEWMAN, B.A., F.R.G.S.

ALTHOUGH the Anglo-Egyptian Treaty proposals are still more or less *sub judice*, and nothing definite can be said about the future of the British forces in Egypt, it is possible to come to some general conclusions as to the likely destination of the troops on the Suez Canal, if that Treaty should come into force.

In the proposals for an Anglo-Egyptian Settlement dated 3rd August, 1929, Article 9 reads as follows :—

“ In order to facilitate and secure to His Britannic Majesty the protection of the Suez Canal as an essential means of communication between the different parts of the British Empire, His Majesty the King of Egypt authorises His Britannic Majesty to maintain upon Egyptian territory in localities to be agreed upon, to the East of longitude 32° E., such forces as His Britannic Majesty considers necessary for this purpose. The presence of these forces shall not constitute in any manner an occupation and will in no way prejudice the sovereign rights of Egypt.”

A glance at the map will show that a large region of Upper Egypt lies East of 32° E. longitude ; but for the protection of the Suez Canal it is only necessary to consider the region North of Suez. This includes the important town of Ismailia, the headquarters of the Suez Canal Company, an important junction on the Port Said-Suez-Cairo railway system, and the point at which the fresh water canal from Cairo branches off in two directions, i.e., to Port Said and Suez. Ismailia is also the best laid-out town in Egypt, being well planted with trees and efficiently supervised by the authorities of the Suez Canal Company. Being almost exactly half-way between Port Said and Suez, and the most important strategical position in the Canal area, it is more than likely that Ismailia would be chosen as the headquarters of the British troops, and therefore be held in some strength. Where the other detachments would be quartered would depend on various considerations ; these final dispositions might well be decided by a mixed commission representative of the three Services. The chief considerations to be taken into account are strategical, water supply, health, training grounds, and the general comfort and recreation of the troops.



NOTE—Long. 32° East corresponds with left edge of map.

Port Said is now regarded as a health resort, and every year large numbers of Europeans from Cairo and other parts of Egypt go there for the summer bathing. Apart from the ramshackle quarter known as "Arab town," it is no longer a "sink of iniquity" and enjoys most of the amenities of Western civilization. Moreover, there are localities on the sea coast, between the Canal breakwater and the entrance to Lake Menzala, admirably suited for barracks. Here a good road runs along the coast, with side roads leading into the town, so that troops quartered there would be within easy reach of the Canal and of the centre of Port Said. From the health standpoint, Port Said is considered by many to rank before Alexandria, and there would be no difficulty in providing healthy recreation for a limited force. Port Fuad, on the East bank of the Canal must also be taken into consideration, as it may soon become the terminus of the Palestine railways instead of Kantara, while it possesses most of the advantages of Port Said without some of its disadvantages. Port Fuad has only been in existence for a few years, and is therefore entirely free of slums and undesirable quarters. From the point of view of training, it might be necessary to move the troops into other quarters for short periods during the training season, in order that they might have more suitable ground for tactical exercises, but with good railway communications and adequate water supply there should be no difficulty about making suitable arrangements. As the training season would, presumably, be during the winter months, there is no reason why the troops should suffer in health from such a move.

As far as the Southern end of the Canal is concerned, it is presumed that Suez and Port Tewfik would be held by detachments, with some provision for the defence of Jebel Atakah, covering the town. Although as a garrison town, Suez cannot be compared with Port Said, there should be no difficulty in providing accommodation for troops equal to that of many military stations in the East, and better than a good many of those now occupied.

A great deal has recently been said and written about the hardships which would have to be endured by British troops stationed in the blazing heat of the Canal area, and dismal pictures have been drawn of regiments having a miserable existence in a sandy desert. But anyone who knows the conditions of Port Said, Ismailia and Suez, and the possibilities of other localities of hard desert, will agree that regimental life in the Canal area could be quite pleasant from almost every point of view. During the war, Kantara gave the Canal a bad name, and there is no question that Kantara has grave disadvantages, but there is very little likelihood of British troops being sent back to that home of barbed-wire, broken bottles and sandflies, especially as its connection with the Palestine railways is likely to be of short duration.

The question of water-supply has long been one of heated political controversy. It was mentioned on a previous occasion¹ how the towns on the Suez Canal are now dependent for their drinking water on the fresh water canal, which is one of the chief reasons for keeping a British garrison in the Kasr-el-Nil barracks in Cairo, near the point where that canal leaves the Nile. It has, therefore, been provided in the Treaty proposals that, if and when the Treaty comes into force, "steps will be taken to furnish reasonable amenities by planting trees, gardens, etc., for the troops, who will also be provided with an adequate emergency fresh water supply." Assuming that the strength of the British garrison in the Canal area would be about 10,000 men, it is proposed to provide condensers of sufficient capacity to supply 80,000 gallons in twenty-four hours, which is at the liberal allowance of 8 gallons per day per man. This condenser system has already worked well in the Sinai Peninsula, and is employed in the Hedjaz to supply water to the members of the annual pilgrimage to Mecca. But, at the same time, it is difficult to see how this would provide an adequate guarantee in the event of an attack on the water supply, which would constitute an "act of war."

Under present conditions it is impossible to consider the defence of the Suez Canal as a military measure separate from the maintenance of a garrison in Palestine, and owing to the possible necessity of co-operation it may be considered wise that both forces should be placed under one and the same command.

¹ See article by the present author, entitled "Egypt and Palestine," in JOURNAL of the R.U.S.I., November, 1929.

INDIA AND AFGHANISTAN

BY COLONEL G. M. ORR, C.B.E., D.S.O., *p.s.c.*,
Indian Army (Retired).

IT was announced in *The Times* of 24th October that the British Secretary of State for Foreign Affairs had replied to a message from King Nadir that he ardently trusted that the hopes which were entertained of peace in a united, friendly, strong and independent Afghanistan would speedily be realised and that the old friendly relations between the two countries would be continued. This was followed by the British official recognition of the new Afghan government under King Nadir Shah (*The Times*, 17th November, 1929).

During the winter of 1928-29 an unwonted interest, which reached its climax in the dramatic and skilful rescue of the European population of Kabul by the Royal Air Force, was awakened in the British public. The public will do well not to let that interest drop. Although the Afghan throne may once more have become occupied by one of the Royal House of Barakzai, and Afghanistan may appear to have resumed the normal course of its life as in the days of Amanullah, the close season of winter in Afghanistan produces a false appearance of stability. It will not be until spring comes that we shall see what use King Nadir will have made of the winter months to re-establish administration at the centre of government, and what action he will have taken to renew ordered government in his provinces. In the spring our public will have much to hold their attention outside domestic politics. The future of our relations with Egypt and the closer union of East African Dependencies are certainly matters of the first importance, but they will be surpassed by the consequences of the Simon report on India. Not the least difficult of the problems to be solved in the future governance of India, as it approaches and finally realises the goal of self-government, is the defence of India and the organization of its military forces for that purpose. The criterion of that organization will be its adequacy for the part the military forces may be called on to play on, or across, the North West frontier of India.

The means of studying the political, geographical and ethnological factors in the country across that frontier are not very accessible to the public. The appearance, therefore, of a popular book on Afghanistan

is most timely. Such a book was published in November last, "Afghanistan," with its sub-title of "From Darius to Amanullah," by Lieutenant-General Sir George MacMunn, provides a fund of information besides giving an interesting account of the history of the people now settled in the area between the Oxus and the Indus. The author is particularly interesting on the subject of British policy towards a buffer state between India and aggression from the North. Twice our armies have fought within Afghanistan; once in order to place our nominee on the throne, and once to punish a ruler for dallying with Russia whose steady advance southwards was becoming a menace. For forty years the rulers of Afghanistan held by their agreement to deal alone with India in the matter of foreign relations, in return for which India gave financial assistance and a promise of military aid in the event of the violation of the Afghan frontier. Then in 1919 came the senseless invasion of India by the hot-headed Amanullah. Its immediate repulse was an easy matter, but no moment could have been more inopportune in which to press home our advantage and exact fresh conditions in the Amir's capital. India was in the throes of post-war demobilization and other entanglements and it was urgent to arrange a treaty. In the terms of that treaty there were none of the usual signs which mark the will of a victor. Our aforetime ally's status was raised to that of an independent kingship, its ruler free to deal direct with foreign powers. This was, as Sir George MacMunn says, a reversal of much that we had long contended for. The subsidy was withdrawn along with the agreement to defend Afghanistan. Sir George MacMunn in referring to this treaty makes a very remarkable statement. "It was," he says, "of course, obvious that the necessity for protecting Afghanistan against aggression must always remain, not because of treaty or promise, but because of the hard facts of our geographical position and the justice of the case. The want of any promise would not in the least change the possibilities of action, but would give us a freer hand if necessity should arise." The statement seems all the more remarkable when it is remembered that Sir George MacMunn was Quartermaster-General in India from 1920-1924, and was therefore in a position to know the responsibilities of the Higher Command vis-à-vis government policy. Viewed in this light "Afghanistan" assumes an added interest because its author gives information regarding all the data on which a consideration of possible courses of action can be based. The rehabilitation of a representative of the Royal House of Barakzai in the person of King Nadir, since the publication of the book, in no wise alters the value of the author's facts and opinions.

The geographical features of the country between the Oxus and the Indus, and the habitat of the various divisions of peoples in that area,

can best be realised from a map; the one with the book is excellent. The dominant feature is the solid barrier from the Pamirs westward to Persia formed by the Hindu Kush and its westerly extensions, generally known as the Paropamisus. This mountain barrier, over which there are but few passes—and these may be closed to a greater or less extent by snow in winter—not only divides the country into a northern and southern portion different in their topography, but separates peoples wholly different in origin, language and characteristics. While all are Muhammadans, those of the north are of the Shiah sect, despicable to the Sunnis of the south. To the north the soil is more productive and the inhabitants are comparatively speaking more peaceful and more amenable to discipline; but Afghan rule—to them a foreign rule—has never been popular. Whereas the mountain barrier divides them from people with whom they have nothing in common, the northern boundary of Afghanistan is neither a linguistic nor an ethnological boundary. Across the Oxus are their kinsmen in the Russian Soviet Republics of Tajikistan and Usbegistan; from the Oxus to Persia, where the frontier is but a map-drawn line, they can join hands with their relatives in the Soviet Republic of Turkmenistan. The soil of Afghan Turkestan is therefore well prepared to receive the seeds of Sovietisation. An embroglio of far-reaching consequences would be started if the non-Afghan races north of the Hindu Kush were stirred to demand political affinity with their kinsmen across the frontier. South of the mountain barrier are all those who, with one main exception, speak a common language, Pashtu, and are of the Sunni sect. The main exception are the Mongol Hazaras in the mountainous tract between Herat and Kabul. But all those who speak Pashtu are not Afghans proper. Between Herat and Kandahar are the Afghans proper. Between Kandahar and Kabul is the large and powerful tribe of the Ghilzai. Both Afghan and Ghilzai are sub-divided into clans by no means always thinking alike or acting together. On the outer edge along the British frontier are various Pathan tribes, each a law unto itself. To the north of Kabul are the Kohistanis and to the north-east the people of Kafiristan so ruthlessly converted to Islam by the Amir Abdurrahman.

The iron rule of Abdurrahman had brought about an appearance of national unity, but he had had to put down relentlessly rebellions in turn by Ghilzais and Hazaras, in Kafiristan and in Afghan Turkestan, and in recent years there have been risings among the Pathan tribes. What Sir George MacMunn calls "an inherent fissiparous tendency" seems to prevent Afghan and Ghilzai Pathan and Hazara from uniting for a common object. Resentful of discipline and with a marked individuality they have given but few recruits to the Afghan regular army which has had to depend on Tajiks, Usbeks, and Turkomans from

north of the Hindu Kush, a people less brave and warlike. But their southern neighbours probably have no equal in a guerilla war. The stir to united action would come not so much from the call of their King for the defence of their country as from the priesthood to defend their faith, and the call would be responded to as much against Shiah as Infidel. This must be borne in mind if ever the people of Afghan Turkestan are tempted to put themselves under the rule of the Soviet Republics.

The new King has already set out in ten points the future policy of his régime. They are :

- (1) The principles of Islamic law as the basis of administration ;
- (2) Prohibition of alcoholic liquor ;
- (3) Establishment of a military school and modern arsenal ;
- (4) Continuance of relations with foreign Powers ;
- (5) Restoration of telegraphs and telephones ;
- (6) Reconditioning of roads ;
- (7) Energetic measures for the recovery of arrears of revenue ;
- (8) Commercial relations with foreign powers ;
- (9) Progressive educational policy ;
- (10) Continuance of the old Council of State, and appointment of a Prime Minister with a cabinet chosen subject to the King's approval.

King Nadir shows that he has learnt some of the lessons of Amanullah's undoing, and his policy, wise before the event, bears out Sir George MacMunn's contention that the future government of Afghanistan should " maintain the character of a theocratic state with a Moslem establishment." His greatest need is money, without which he cannot re-establish neither an army nor arsenal, nor restore communications, nor progress with an educational policy. The sources of revenue are chiefly land tax, a tax on traders and customs, which in 1926 yielded 2½ millions sterling. It was a sum which had become clearly insufficient to meet Amanullah's grandiose ideas of embassies to foreign Powers, and modern palaces, and at the same time pay his army and improve communications. There are undoubted mineral resources which are as yet untouched. If the conservatism of the priesthood against foreigners can be overcome and confidence established in the new administration, mineral concessions may form an appreciable source of state income.

Sir George's argument that Afghanistan requires a road system and not a railway system is undoubtedly sound. With little capital or credit the maintenance of roads can be met to a great extent by tolls, and the mercantile public can find the rolling stock. The road system of Afghanistan bears a close relation to the question of military operations, whether embarked on by a power from the north or by others. With

the coming of motors, roads have been much improved in recent years. The surface of the main routes has been cleared and in some stretches metalled, gradients over mountain passes have been eased and arrangements made to keep them cleared of snow.

Given a pretext, the Russian Union of Soviet Republics would have no difficulty in penetrating into Afghan Turkestan up to the foot of the Hindu Kush passes. The railway south through Bokhara runs along the north bank of the Oxus through Kelif to Termes, from opposite both of which places there are practicable roads to Mazar-i-Sharif, Tashkurghan, and Kunduz. From each of the latter two places roads, either already motorable or presenting no great engineering difficulty to conversion, run south to the two main passes over the Hindu Kush en route to Kabul. From Patta Kesar ferry, opposite Termes, through Tashkurghan and Haibak to the Ak Robot pass the distance is 220 miles, while through Kunduz to the Khawak it is 260 miles. Strangely enough, Sir George MacMunn does not give this route in his list, though it has been long recognised as practicable and no more difficult in winter than the other. For lateral communication there is a practicable cart road from Kunduz westward through Mazar-i-Sharif and Maimana to Bala Murghab which is only about 40 miles from the nearest point on the railway from Merv to Kushk. The railhead at Kushk Post is 70 miles from Herat by a motorable road over the Ardewan Pass.

From the side of India the distance from the frontier debouch of the Khyber through Kabul and Charikar is 295 miles to the Khawak pass, and 315 miles to the Ak Robot pass. There is a shorter route of 295 miles direct from Kabul to the Ak Robot, but it crosses the Unai and Irak passes en route and would be impassable in winter. Turning to the western flank, the distance from Chaman to Herat is 461 miles, passing Kandahar at 72 miles, Girishk on the Helmand at 147 miles, Farah at 312 miles, and Sabzawar at 387 miles. Probably the best road in Afghanistan is from Kabul to Kandahar, 325 miles in all.

In the days when Lord Kitchener was organizing the Army in India to meet a Russian invasion, and Colonel Repington, *The Times* Military correspondent, was enlightening the public on the subject, the latter wrote to the effect that the heads of the Russians' advanced guard should be able to appear upon the line of the passes north of Kabul between the seventh and tenth weeks of a campaign, and that the defence of the passes from the Khawak to the Ak Robot might absorb 30,000 men with at least another 20,000 in reserve at Charikar. He showed that it was only on the Herat-Kandahar flank that really large forces could be maintained, but that the waterless stretch of some 150 miles between Farah and Girishk would be a real difficulty. He considered that India

must be prepared to put 50,000 men into Kabul and 50,000 at Girishk in six weeks from the moment of the violation of the frontier. He then envisaged the force on the Helmand having to be raised to 250,000 in eight months and 500,000 in eighteen months, which, with 50,000 at Kabul and 100,000 controlling the communications and the tribes on our frontier, brought our requirements up to 650,000. These figures are given merely to show what an acknowledged authority thought was necessary for a war in Afghanistan for the defence of India.

It is true that the premises are very different from those to be inferred from the absorption of Afghan Turkestan by means of Sovietisation, which does not in itself connote a definite intention of the conquest of Afghanistan. Nevertheless if our policy is to look on a new Russo-Afghan frontier stretching along the northern foothills from the Pamirs to Bala Murghab, even omitting the Herat district, as a definite menace to India, then we would presumably have to urge the King of Afghanistan not to acquiesce and to let us join with him in expelling the invader. At the first sign of action from us the Russians would surely occupy Herat, if such a course had not already formed part of their absorption policy, although it might well bring in Persia on the side of a British-Afghan alliance. Possession of Herat and the fertile district of Sabzawar is of great strategical importance. Not only is it a necessary stepping stone to an advance south but it is a serious flanking menace to the Afghan defence of the passes north of Kabul. There is a route, believed practicable for camels, up the Harirud valley and the Hazara country to the Unai pass and Kabul. The mere threat of a Russian approach to the passes of the Hindu Kush must necessitate a careful system of their defence by the Afghans. If a reconquest of Afghan Turkestan is intended, then it is certain the Afghans will require support, and with equal certainty a substantial force would have to be placed on the Helmand at Girishk. Under such a contingency Colonel Repington's figures as regards India's task in the first six weeks may well be invoked as the measure of its immediate needs. Nor would it be safe to ignore his larger figures as the measure of possible requirements.

The military forces of India as at present constituted are divided between Covering Troops, a Field Army and Internal Security. The Covering Troops consist of a division of three brigades in the Peshawar district and Khyber, of two brigades for the Kurram valley, of three brigades for Waziristan, and of one more if the troops in the Zhob independent brigade area be added. The Field Army is of four divisions, found from the Rawal Pindi, Meerut, Deccan, and Baluchistan districts, and of four cavalry brigades, with a modicum of other units for Army Troops. The remainder of the Army is allotted to internal security having for reinforcements the Auxiliary Force of British Volunteer units

to the number of some ten mounted corps, twenty-one batteries and thirty battalions including eleven found from the railway administrations. The Indian Territorial Force which was organized to be a second line to, and a source of reinforcement for the Indian Army, has at present but eighteen battalions, for whom the provision of suitable officers is a difficulty. A better source of reinforcement would be found in the Indian State Forces from whom could be drawn the equivalent of twenty mounted regiments and twenty-seven battalions. Along the North West border are militia organizations in the Kurram, the Tochi, Waziristan and Zhob. Whether the operations to which the Army of India may be committed are limited to Afghan Turkestan or extended to the Western flank of Afghanistan, an Air Force will play a vital part. The Hindu Kush is nearly 500 miles of flight from our Indian aerodromes, and 300 miles from Kabul, and presents a barrier between 15,000 feet and 16,000 feet high with passes between 9,000 feet and 12,000 feet. The strength of the Air Force in India is four bombing squadrons and four co-operation squadrons.

Railheads on the Indian Frontier from which forces equipped with animal drawn or mechanical transport can move forward into Afghanistan, and at which there are definite arrangements for continuous detraining, are in the vicinity of Peshawar and at Chaman.¹ The Khyber railway is not for a more forward concentration of troops but to overcome the difficulties of the transportation of supplies and material by road through the pass to advanced depots beyond. Both Peshawar and Chaman are at the end of single track railways so that the capacity of the lines is very definitely limited. Sir George MacMunn draws attention to the additional limitations of the railway through Baluchistan, stressing the facts that frequent trains cannot pass through the ill-ventilated Shelabagh tunnel under the Khojak pass, and that gradients limit train loads. From the writer's own knowledge he would say that the real limiting factor is the steepness of the gradients. The numbers of trains that can be dealt with through the tunnel to Chaman is no less than the numbers that can be dealt with to Peshawar, but the train loads are half the weight. Thus we find that on the important Kandahar-Herat flank where large forces may have to be employed the rate of concentration is likely to be twice as long as it would be with normal train loads. The single thread of railway from the Indus to Chaman is a very seriously weak link in the deployment of forces for the defence of India.

It is obvious that even the limitation of war to the Afghan Turkestan would require the whole of the military forces in India to assist those

¹ Kohat has detraining facilities, and there is a motor road nearly up to the Peiwar Kotal, but the road beyond over the Shutargardan Pass to Kabul is barely fit for camels.

of the Afghan King. Of the Afghan regular army nothing can be said. It has disintegrated with the recent civil war and must be reconstituted. Even with Turkish assistance in Amanullah's day it was neither sufficiently equipped nor trained to meet the forces of a foreign Power in the open. The strength of Afghanistan's defence lies in her warlike tribes and mountain passes. But to get tribesmen to fight outside their own area will require a more tangible persuasion than Heaven in the cause of Faith and Country.

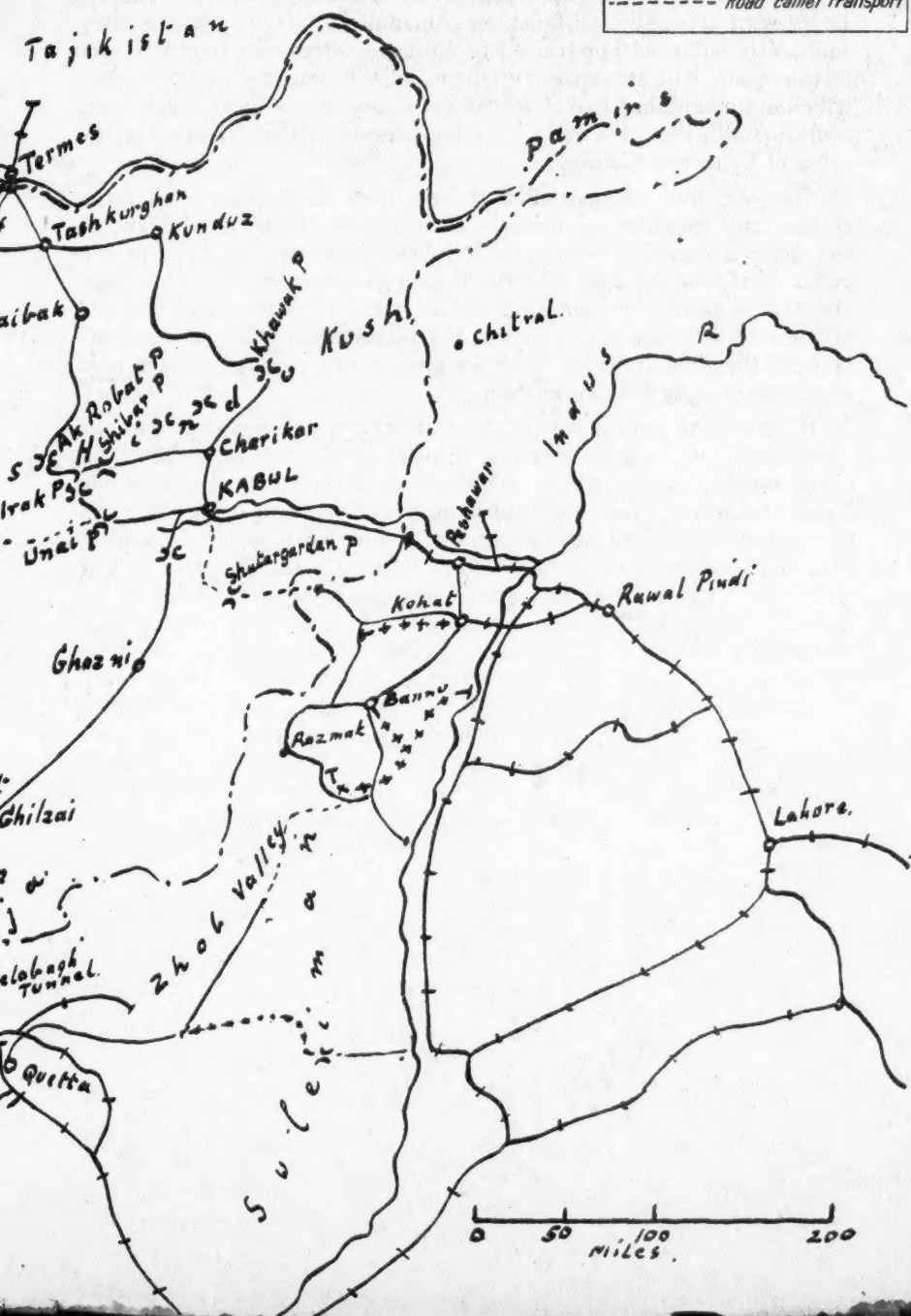
The year that has passed must have been an anxious one for the British and Indian governments. The chaos in Afghanistan might at any time have given a pretext for Russian interference, egged on by the policy of making difficulties for the British government. The New Year opens with no obvious cloud on the horizon. In Afghanistan there is promise of ordered government. With the resumption of relations between Britain and Russia there is a promise of a cessation of measures which might disturb those relations.

It remains to pursue our policy of preserving a buffer state without a definite treaty or understanding if events took a course making the future problem of the defence of India more difficult. It rests with our diplomatic agents to use such opportunities as occur to suggest at least the best defensive organization of the Hindu Kush passes. There is admittedly no hope of British officers being utilized to organize and train the Afghan forces. The strict adherence to a policy of neutrality towards Britain and Russia carried out by Amanullah's father and grandfather will no doubt continue. King Nadir will look elsewhere for the assistance he may think it necessary to obtain. Of recent years it came from Turkey and proved by no means congenial to the Afghan troops. In future it may come from France, whose people and institutions King Nadir is believed to hold in high regard. Meanwhile the British public should not cease to wonder what will happen if a buffer state must be maintained by force of arms, treaty or no treaty.



—X—

- Road camel transport



THE INTERNATIONAL SITUATION

THE LONDON NAVAL CONFERENCE.

FOLLOWING on the acceptance of the British invitation, delegates from the United States, France, Italy and Japan assembled in London during the early part of January, in readiness for the Naval Conference.

The Conference was formally opened by His Majesty the King on 21st January. In a speech to the delegates and other representatives of the Nations assembled in the Royal Gallery of the House of Lords, His Majesty said :—

“ It is with sincere satisfaction that I am present here to welcome the delegates of the five principal Naval Powers, assembled with the object of eliminating the evil results of wasteful competition in naval armaments.

“ Every nation represented here is proud of its Navy, proud of that Navy's past achievements and inspiring traditions. It is not the fault of these traditions nor of our navies if competition in naval construction due to the supposed exigencies of policy has led to a feeling of insecurity between nations and even to the risk of war. Since the Great War all peoples have determined that human statecraft shall leave nothing undone to prevent a repetition of that grim and immense tragedy. In the edifice of peace which we are seeking to build, one of the most important columns is agreement between maritime nations on the limitation of naval strength and a reduction to a point consistent with national security.

“ The practical application of the principle of reduction of naval armaments has in the past proved a matter of supreme difficulty. A great success was achieved in the conclusion of the Washington Treaty of 1922, imposing certain limitations on the construction of the capital ship and the aircraft carrier, but hitherto all efforts to advance beyond that point have failed.

“ I believe that you, to whom your Governments have entrusted the high mission of continuing the task begun at Washington, are animated with the single-minded intention of working, not with any selfish and exclusively nationalistic purpose, but with the noble inspiration and resolve to remove once and for all this particular obstacle from the path of ordered and civilized progress.

"We all have varying needs which demand special consideration, but if each of us is equally determined to sacrifice some small portion of our special needs as a contribution to the common good, I feel sure that your deliberations will confer a great and lasting benefit, not only upon the nations you represent, but upon mankind generally.

"I earnestly trust that the results of this Conference will lead to immediate alleviation of the heavy burden of armaments now weighing upon the peoples of the world, and also, by facilitating the future work of the League Preparatory Commission on Disarmament, hasten the time when a general disarmament conference can deal with this problem in an even more comprehensive manner. In this hope I shall follow your deliberations with the closest interest and attention."

On the proposal of Mr. Stimson (U.S.A.), seconded by M. Tardieu (France), Mr. Ramsay McDonald was elected Chairman.

The chief representatives of each country then replied to His Majesty's speech in terms expressing a desire that the Conference should be successful in securing a limitation and reduction of naval armaments. A desire for "world peace" was reiterated by each speaker, and the Conference then adjourned to reassemble the following day at St. James' Palace, where it had been arranged that all subsequent meetings would be held.

Up to the time of publication of this Journal, no appreciable advance has been made in arriving at any concrete agreement, although the attitude of the various Powers towards the problem has been somewhat clarified.

UNITED STATES PROPOSALS.

On the 6th February, Mr. Stimson published tentative proposals on behalf of the United States. These were :—

- (1) The battleship fleets of Britain and the U.S.A. should be equalized by 1931, instead of 1942 (as arranged by the Washington Treaty).
- (2) The United States should have eighteen 8-in. gun 10,000-ton cruisers and Britain fifteen, giving the former 30,000 tons advantage in large cruisers.
- (3) In the smaller 6-in. gun cruisers, Britain should have an advantage over the United States of 42,000 tons. But "equality of opportunity" should be ensured by making it optional for the United States to reduce her large cruisers to fifteen and increase the number of small cruisers, or for Britain to reduce the number of her small cruisers and increase the large cruisers to eighteen, so that each country might exactly duplicate the cruiser fleet of the other.

- (4) Certain (unspecified) proposals, it was announced, were being made to Japan, which "would produce an over-all relation satisfactory to us and, we hope, to them."
- (5) No proposals were made to France and Italy as their problems were felt not to be directly related to those of America.

THE BRITISH PROPOSALS.

The following day a Memorandum setting forth the proposals of the British Government was published. The principal points were:—

- (1) Agreements resulting from the Conference to run until 1936. A new Conference to be called in 1935.
- (2) Agreements should apply not only to global tonnage, but to various categories: capital ships, aircraft carriers, cruisers, destroyers and submarines.
- (3) The number of capital ships allocated to each of the five Powers in 1936 under the Washington Agreement to be reached in eighteen months' time.
- (4) No replacement of capital ships until after the Conference in 1935. It is noted that the Government's experts favour a reduction in size from 35,000 tons to 25,000 tons, and of guns from 16 in. to 12 in. The Government, however, wish to see an Agreement by which the battleship will in due time disappear altogether, as it considers them "a very doubtful proposition."
- (5) Proposals are made for a reduction of total tonnage and individual size of aircraft carriers.
- (6) Transfer of tonnage in capital ships, aircraft carriers and submarines is opposed, but transfer of cruisers in the 8 in. class to the 6 in. class would be permitted.
- (7) Cruisers to be divided into 8 in. and 6 in. classes; tonnage limit of the former to remain at 10,000 tons and that of the latter to be 6,000 to 7,000 tons.
- (8) The British Commonwealth requires 339,000 tons, divided into 50 cruisers.
- (9) Flotilla leaders to be limited to 1,850 tons; destroyers to 1,500 tons. Maximum gun calibre for these classes to be 5 in.

Japan adheres to her claim for 70 per cent. of the cruiser strength of the most powerful navy, and desires equality in submarines, which she wishes to retain for defence purposes.

France and Italy are still far from finding common ground on which to establish the relative strength of their navies. The French attitude towards the Conference is that it can only be regarded as a discussion of principles preliminary to the general question of disarmament, which

is the work of the League of Nations. She makes no secret of the fact that she prefers to regard the provisions for security retained in the Locarno Treaty as the basis of negotiations, rather than to rely on the Kellogg Pact to outlaw war, as the latter has no practical means of implementing its pious assertions. France has no intention of surrendering on the question of submarines, which she regards as being vital to her sea security, but is putting forward new proposals for "humanizing" their use in time of war.

Italy, after much vacillation, appears to be disposed towards agreement to abolish the submarine, but, doubtless recognizes that the suggestion is quite impracticable.

Agreement on the order in which the various problems facing the Conference are to be taken is still lacking. It is the British desire that battleships should be discussed before cruisers, while the Americans maintain that the opposite course should be adopted.

Up to date none of the delegates of the three remaining Powers have issued any reply to the British and American Memoranda.

THE STRATEGIC SITUATION OF SPAIN

THE neutrality of Spain during the Great War led to a great increase of material prosperity in that country. This was followed by important social developments. That fortunate condition, however, was to some extent neutralized by the burden of the Riff Campaign, which dragged on from 1920 to 1925, as well as by grave internal unrest. Nevertheless, Spanish finance and commerce has made so good a recovery from the embarrassments of these unfortunate years, that Spain is now entitled to rank as a weighty factor in Europe: the more so as by reason of her mineral wealth, combined with her geographical position, she may now aspire to play a serious part in stabilizing the balance of power along the Mediterranean shores, if not in the entire European continent. That Spain holds very clear and decided views in all these problems is shown by the fact that in the last ten years she has not only rejuvenated her navy, but is also projecting the construction of some powerful battleships, while she is re-arming her coast defences. She is also reorganizing her land forces, slowly it is true. Lastly, she is bent on developing a serviceable air force of appreciable size.

The principal factor governing the European situation of Spain is her geographical and political isolation. Divided from France by the very difficult barrier of the Pyrennees, she stands in a particularly strong military position, since her remaining frontier, which marches with Portugal, should not cause her any anxiety, unless it be in the somewhat remote event of Portugal being utilized as a stepping-stone

for invasion of her territory. This, of course, could only be accomplished by a strong naval power, which must rest assured that such an invasion would not constitute a *casus belli* with any other European power or powers, unless a general European war were already in progress.

Spain's principal defence problems are naval, and in this respect it would appear that her position is also one of some strength. Her north and north-western coasts are difficult of access, save at easily defended ports. The Straits of Gibraltar she may well aspire to control by means of coast defences, submarine flotillas, and by means of aircraft, which weapons she can utilize from both sides of the narrows—from Cadiz and Cartagena to the north; from Melita or Ceuta to the south. The eastern side of Spain is favourably situated, and well provided with ports from which she can dominate the Western Mediterranean sea routes. In addition, she possesses the Balearic Isles and the Isle of Alboran as possible bases.

In political respects also, Spain possesses distinct advantages. She is actually under-populated, and for this reason has no entanglements arising out of the existence of Spanish communities in other countries, or out of colonial difficulties. The possession of Gibraltar by Great Britain does not appear to be causing Spain any anxiety, neither does it seem to be alienating Spanish sympathies from this country. Spain now regards Gibraltar as being somewhat cramped, and too vulnerable to air attack. So long as friendship with Britain continues, two benefits seem to accrue to her from the presence of the British at Gibraltar, viz., an entire feeling of security as to her Portuguese frontier, and British co-operation in Morocco.

Spanish relations with France are also entirely friendly, and there appears to be no cause for friction on that side. The Spaniards are building railway lines through the Pyrennees, whilst France is reciprocating these concessions by her friendly attitude towards Spain in Morocco and elsewhere. With Italy, too, she is on friendly terms.

But it must be remembered that Spain, on the one hand, and Italy on the other, are flanking France's sea communications with North Africa, which is now regarded as France's main reserve of man-power. In time of war Spain would resent any violation of her rights at sea. Consequently, to maintain her neutrality in any European war and to prevent any breach of that neutrality by a possible belligerent in the Mediterranean, is now the corner-stone of Spanish policy. In August, 1926, she concluded a Treaty of friendship with Italy. This was followed by the conversations held at Palma between the Spanish Dictator and the British Foreign Secretary in September, 1927. Finally, there came the Treaty of neutrality, signed with France in June, 1929.

So being isolated and unencumbered by alliances, while occupying a strong natural strategic situation, Spain's greatest asset in time of war

must be the possibility of throwing in her lot with any possible belligerent or combination of belligerents. Spain, in such an event, would have much to offer. Her value as a potential ally to Great Britain has already been mentioned. In addition to ensuring her co-operation in controlling the sea routes passing through the Straits of Gibraltar, a Spanish alliance might be eagerly sought, since Spain can offer the free use of the excellent harbours she possesses on her Atlantic and on the Mediterranean coasts; she possesses valuable naval bases in the Balearic Isles, as well as in the Canary Islands. There are her great mineral resources. In short, to a naval power, Spanish friendship and alliance in time of war might prove of immense value. But Spain, fully aware of this fact, is not likely to be drawn into any such a compact, either now or in the future, unless her national and economic interests threaten to become seriously compromised in a major European war.

But the future of Spain is largely bound up with internal politics which, before now, have occasioned Spain some diminution of prestige abroad.¹

¹ See article on 'Spanish Military Affairs'; R.U.S.I. JOURNAL, November, 1926, p. 814; also "A Sketch of General Primo de Rivera," R.U.S.I. JOURNAL, November, 1927, p. 876.

THE SITUATION IN THE BALTIC STATES

(Adapted from the German "*Wissen und Wehr*," August, 1929).

LITHUANIA, Latvia and Estonia are the smallest states of Europe; their respective populations number only 2,300,000, 1,800,000 and 1,100,000, while that of Finland is 3,500,000. In addition, they possess no appreciable mineral wealth nor industries worth mentioning; the majority of the inhabitants are peasants. But since their territory lies along the shores of the Baltic, and is surrounded by Germany, Poland and Russia, their geographical and strategical situation is of sufficient importance to outweigh all other considerations. Moreover, because they separate European Russia from the Baltic, they have acquired a primary interest to all European powers, since the problem is thereby connected with the whole future of the Baltic Sea, in itself one of the most difficult problems that has arisen since the Great War.

Before the war, Lithuania, Latvia and Estonia were Russian provinces, and Riga and Reval, the capitals of the latter States, were two of the chief ports of the Russian Empire. Economically, they were more important as 'Russia's windows towards Europe' than was St. Petersburg itself, whilst Hango, in Finland, was the only Russian port in the Baltic which was always free from ice. When, after the Great War, the Baltic States became independent, Russia was practically cut off from the sea. This fact indicates the delicate position in which

the new countries are situated with regard to Soviet Russia, who has now recognised their independence. The resulting problem, however, is one of importance for the future rather than for the present, as the whole question will assume a very different aspect when Russia attains economic and political stability.

In considering the future, it must be remembered that the problem of internal disagreement is still further complicated by the fact that England, France, Germany, Scandinavia and Poland all have conflicting interests in the Baltic area. Faced with this difficult and dangerous position one might have expected to find the new States forming some alliance for their own joint protection, but this has not been the case. In fact, Lithuania stands entirely aloof from the other Baltic States, owing largely to her strained relations with Poland. There is no question of her forming even a loose association with her neighbours. Negotiations have taken place but have come to nothing, as not one of the parties is willing to make economic concessions, and, as they are all economically in much the same position, some sacrifice on the part of each is an essential preliminary if an alliance is to be formed on a sound basis. These States have, indeed, but one thing in common: that is their anxiety to preserve their independence. Even so, there exist differences of opinion in this respect, since Latvia, Estonia and Finland look upon Russia as the chief threat to their independence, whereas it is Poland that Lithuania fears most.

In addition to these questions of general policy, there are special points of dissension between Lithuania and Latvia, particularly disagreement over railways. Thus Latvia demands that the Romnyr line, which runs from the Ukraine through Poland and Lithuania to the Latvian port of Libau, shall be free for through freight transport. Its free use is, of course, a vital necessity to this port of Libau, but Lithuania objects to the free passage of goods on this line, as such a course would interfere with her policy of boycotting Poland. Up to the present, the Lithuanian frontier has been hermetically sealed against Poland, even to cutting the railway lines short of the frontier. The one concession granted to the Poles, and that only after prolonged negotiations, is that on showing an official permit Polish peasants are allowed to cultivate the fields lying along the frontier.

With the exception of Lithuania, the Baltic States were definitely anti-Russian in their policy during the first years of their independence—and quite naturally so—as they looked to anti-Russian countries for support whilst English and French influence was predominant. The newly-established State of Poland, which in spite of French help only just escaped defeat in the war with Russia in 1920, was at that time anxious to form some sort of alliance between herself, Latvia, Estonia and Finland. For some time this seemed likely to come about under

English and French influence, but the other States realized the danger underlying such a course, and all of them, especially Finland, saw that the best way to maintain their independence was to avoid any such coalition, particularly one that was anti-Russian in policy. Nevertheless, Poland has never relaxed her efforts to bring about some such understanding.

Russo-Polish enmity is as old as the nations themselves. In their efforts to guard against an attack from Russia, the Poles have continually aimed at forming a barrier to run from the Black Sea to the Baltic, consisting of Poland in the centre, Latvia, Estonia and Finland on the left wing, and Rumania on the right wing. In the case of Rumania the Poles have achieved some success, owing to French pressure, and there exists to-day a treaty between Poland and Rumania, the chief clauses of which refer to a possible war with Russia. On the left wing, however, the Poles have not been so successful, although they have made considerable headway in purely military circles. The more reluctant do the Governments of the neighbouring States show themselves to enter into an alliance with Poland, the more vigorously does the Polish army pursue its policy of establishing friendly relations with the armies of its neighbours—Lithuania always excepted. These friendly advances have met with appreciable response, chiefly because the General Staffs of the other Baltic States regard Poland as a potential ally in the case of an attack by Russia: so far, then, Polish efforts may be said to have rendered possible a certain degree of co-operation between the respective General Staffs. The curious situation has thus resulted that the Governments of the States adhere to a strictly neutral policy, while their armies maintain friendly relations, and to some extent even co-operate with each other, though Finland, being further away, is not involved in the process to the same extent as are the other States. The conclusion of the Litwinow Pact last year (1929) between Poland, Latvia, Estonia and Rumania, is a proof that the Poles have made considerable headway in Baltic military circles, although Finland still declines to be a signatory to the Pact.

While Poland has been trying to gain political influence in the border States, Sweden has been using her capital to ensure economic advantages; in fact Sweden has recently acquired considerable influence in Latvia and Estonia, largely on the strength of the social and economic ties that have existed for a long time between her and all the Baltic States.

The position of Lithuania, who has remained outside all these schemes, is easily explained. Her attitude towards Latvia and Estonia is neutral, but towards Poland she is definitely hostile. The reason for this enmity is the surprise and seizure of Vilna by a breach of faith which followed the signing of a treaty between the two countries in 1920. Ever since

that event Lithuania has boycotted Poland and has not ceased to demand the surrender of Vilna. But there are also further reasons for such hostility. The Poles, especially in military circles, consider that they have a claim to Lithuania, and have made it clear that they would lose no opportunity of annexing that State, chiefly because it would give them another sea port. Lithuania thus feels that Poland is a threat to her independence, and regards any friendly advances made by Poland as the first step towards the Poles gaining a footing in their State. Lithuania fears Polish influence which might gradually lead to some sort of alliance between the two countries. Such a step, so the Lithuanians believe, must end in their country becoming absorbed by Poland.

The result of this circumstance is a situation unprecedented in history: a small State is carrying on an almost complete boycott against a larger neighbouring State in times of peace. And, in spite of all difficulties this course entails as well as the pressure brought to bear by other powers, that small nation has succeeded in clinging to this policy for ten years; neither is there any sign of a change of attitude in the near future.

It is clear that the problems of the Baltic States and of Russia are so closely interwoven that all other European powers are directly or indirectly involved in the issue at stake, and that a final settlement of the Baltic States and of the Baltic Sea is a question of vital interest to Europe as a whole.

COMMUNICATIONS IN PERSIA.

THE majority of modern States possess, for their methods of transport, road, rail, canal and air communications. In Persia, however, the former alone is available, while the facilities which it affords are not good. Some roads are poorly metalled, others are not metalled at all, and traffic often prefers to take a parallel line some thirty or forty feet from the main road, where a speed of forty miles an hour can be maintained in several inches of dust. But rain drives one again to the metalled tracks, rendering all others impassable, even for mule transport. Persian ponies seem to move with greater ease than mules through the glutinous mud.

Canals are non-existent, and the commercial and passenger air lines are run by others than Persians. The position of the railroads is of considerable interest. Of the lower orders there is a tramway in Teheran, on which run horse-drawn trams of poor and uncertain service. Also six miles of railway, leading into the country S.E. of Teheran. Its single train is a daily event.

The rise of Persia in the comity of nations became an excuse for her rulers to equip her suitably with modern amenities. Chief among

these was the project of a standard gauge railway from North to South, designed to give access to the great East and West sea route, Singapore-Suez via the Persian Gulf, and to the great land-and-water route, which connects Western Europe with Vladivostok. After protracted preliminary arrangements, the text of a railway bill was placed before the Majlis, and became law on 19th April, 1928. Considerable survey work having been performed, a decision was made to build simultaneously from the Caspian Sea and the Persian Gulf. The first rail was laid on the 26th January, 1929, at Bander Shah. Since then, work has proceeded as fast as the peculiar difficulties of the country would allow. At the end of June, 1929, approximately forty kilometres of the northern section and thirty-four miles of the southern section were completed, no portion of which was operating commercially.

The two termini of the trans-Persian railway are ports: the northern Bander Shah, the southern Bander Shahpur. Both these require to be constructed *ab ovo*, thus enhancing the cost of this ambitious project. No estimate can be formed of the traffic which is likely to be tapped by the line, but it has been stated¹ that, upon a present freight basis of £20 to £25 per ton in Khuzistan and Luristan, and £8 to £10 per ton in the Teheran-Caspian Sea area, should the railway carry 150,000 tons per annum then would the rail freight be one-quarter of these charges. But this seems an appeal to silence. What traffic is there to carry? Through what mineral-producing regions does the line pass? Into what great agricultural districts does it penetrate and could it assist in developing? Difficult questions! Still, before a criticism of this boldly-conceived venture be attempted, it is prudent to turn to the history of the development of railways in western Eur-Asia to discover what lessons have been ignored and by which Persia has profited.

Before the railway era in England, France and Belgium, there was a considerable traffic in passengers and merchandise which was conveyed by coach, cart, pack-animal and canal.² At the commencement of the construction of the first great Persian railway, traffic was not so considerable; it was partially carried by fast-moving motor vehicles, and included no mineral product of any kind. In Europe the needs of a growing population and of a post-war recovery of trade were being somewhat suffocated by inadequate rapid transport: in Persia these means of transport are more than adequate, for its road mechanical transport is operating at rates which must provide the operating concerns with the minimum of profit, if indeed they are not run at a loss. Persian currency has depreciated; thus national undertakings are forcing

¹ *The Times*, 12th April, 1928.

² This latter form of transport does not affect Persia, but it may be that coastal sailing traffic can be considered to be analogous.

purchases to be made abroad for the balancing of which insufficient work is being performed in the country. Agricultural, industrial and other profit-earning occupations in Persia have not produced a generation of great bankers. The creation of monopolies such as those of tea and sugar has been resorted to in order that the revenue of the country may be increased: this has led to an increase of smuggling, against which it is almost impossible to institute adequate preventive measures. For how can a country with no navy protect a coast line of over one thousand miles? In addition, the temptations to local officials to participate are enormous. With the example of the American illicit liquor traffic, so prominently before us, comment is unnecessary. Neither is there any process similar to the cotton looms in India, which might be mechanized and, being still kept in the country, might become a source of a considerable export trade. Finally, when railways in Europe were laid and were operating, they were maintained with material, both raw and manufactured, and labour by the nations which owned them. Allow it to be presumed that the North-South Persian railway is completed: for some considerable time material, both raw and manufactured, together with labour would have to be imported, and it is indeed problematic if ever mines of coal, iron and flux will be discovered in the country. It is thus fair to assume that, not only the interest on the capital, the redemption of the loan bonds, but also the whole of the expenses of working will fall upon the State. This will further tend to depress the currency.

Therefore, it may be placed beyond doubt that the state of the development of the country and the financial power of the Persian State are unsuited to an ambitious scheme of rail transport. The primary economic and administrative lessons of railway construction, which were emphasized in Europe during the XIXth century, have been lost to the Persians. What is the answer, since the transport system of the country must be improved? It seems to lie in the direction of an intensive road campaign. If roads were well sited, well made, well maintained and protected, then would private enterprise improve the means of transport, increasing trade and revenue. It is easier to carve and maintain a road through difficult country than it is to site and tunnel a railway: often existing tracks may be improved. The country in the neighbourhood of the road would be opened up, and its productive and revenue-earning capacity increased. Secondary roads for a time would not be necessary; in dry weather motor transport would find its way, and during rains pack transport could form suitable depots on the main roads or the passable sections of the secondary routes. It is unnecessary to enumerate the routes which should first be developed, a glance at a map of Persia will immediately make them

clear. The development programme would have to be judiciously elaborated, since it would be folly to start work first on the Teheran-Qum-Kashan-Nasirabad road. Rather should a start be made to connect areas capable of intensive agricultural development with ports and the Capital, and then mining centres when they are discovered. If industry is non-existent, then must agriculture and husbandry be exploited to form the basis of the national prosperity.

Apart from a small military air force, the control of the passenger and commercial lines in Persia are operated by the firm of Messrs. Junkers, Ltd. These lines follow the main trade routes in the country, and indicate a possible skeleton of a road development scheme. The ground arrangements and means of inter-communication have not yet reached even the elementary standard of European practice; indeed, the communications on which the English route from Egypt to India depends are capable of considerable improvement. At the capital there is not even a hangar, no engine repair sheds, no modern petrol installation, no electric light. Just an open and indifferently level space with a few customs sheds. It is said that in the winter half-a-metre of snow has often to be brushed from the wings and the cockpit tarpaulin before the engine can be started. Yet many miles are flown, and the journey to Baghdad can be made in five hours, whereas by road at least three days are necessary. Owing to the present¹ unsettled state of Fars, the only way by which Shiraz can communicate with the outer world is by telegraph and by aeroplane.

¹ June, 1929.

CANADA: THE WELLAND WATERWAY.

It is expected that the new Welland Ship Canal, which connects Lake Erie with Lake Ontario, and has been built at a cost of over £24,000,000 by the Dominion of Canada, will be opened officially on 1st July next. It will have eight large locks, and will enable ships to pass through the twenty-seven miles in a matter of eight hours—or rather less than one-third the time required for passage through the existing waterway.

The whole achievement is one of the most remarkable in modern engineering; it has involved reclamation, bridge building, electrification, terminal construction and a host of other big enterprises.

BOLIVIA: BOUNDARY DISPUTE WITH PARAGUAY.

Report of the Commission.—In accordance with the decision of the two countries to submit their difficulties to arbitration by the Pan-American Conference on Arbitration, then sitting at Washington, a

Commission of Inquiry was set up, consisting of a U.S.A. Chairman, General Frank McCoy, and one representative from Mexico, Colombia, Uruguay and Cuba. This Commission was to meet at Washington to determine responsibility for the rupture of peaceful relations, but arbitration on the main issue—viz., the delimitation of the boundary—was at first expressly excluded from its terms of reference. Subsequently, both countries agreed to receive the Commission's recommendation on this fundamental question, subject to certain conditions. The Commission was able to pursue its labours in comparative peace, only one small fracas in the disputed area giving cause for alarm; this was actually brought on by a request from the Commission for further geographical details about the area in question. The small party of Paraguayans who approached Fort Vanguardia in furtherance of this request, was fired on by the Bolivian sentry, and returned the fire, wounding one Bolivian. Much capital was made out of this event by both sides. The Bolivians took the opportunity of strengthening their troops in the area, while both countries continued to import arms from Europe.

The Commission reported in September, 1929, making the following recommendations :—

- (1) Bolivia and Paraguay to forget all offences and grievances.
- (2) Both sides to revert to the *status quo ante* the incidents of December, 1928.
- (3) Diplomatic relations to be resumed between the two countries.
- (4) Bolivia to hand back Fort Boqueron to Paraguay, and Paraguay to rebuild Fort Vanguardia, which they had razed to the ground, and deliver it back to Bolivia. In addition, all prisoners captured in December were to be exchanged.

Both countries agreed to these awards.

The Commission made the following further recommendations with regard to the fundamental question of boundary delimitation :—

Firstly, the territory awarded to Paraguay by the Hayes Award of 1878 to be excluded from arbitration. This territory is that lying to the South of a line drawn in a Westerly direction from the junction of the Rivers Verde and Paraguay, parallel 23° 10', across to the River Pilcomayo.

Secondly, Paraguay, whether the final award is in her favour or otherwise, to cede the port of Bahia Negra with enough ground to form a port.

Paraguay sent an emphatic refusal to these recommendations in view of the proposal to cede Bahia Negra; in fact, so great was the popular outcry, that no other course was possible. She also considered

that it would be hopeless to try to arrange matters direct with Bolivia. Bolivia has equally rejected the terms, saying that she prefers to treat the matter direct with Paraguay through diplomatic channels. She insists that any arbitration must include the territory involved in the Hayes Award, while Paraguay insists to the contrary.

THE CONFLICT IN MANCHURIA.

AFTER some minor encounters that culminated in a few small skirmishes and movements of little importance, during last summer, there ensued a period of inactivity on the Russo-Manchurian frontier, which lasted until 12th October. On that date the Soviet forces appear to have crossed the Eastern Manchurian frontier, to have occupied Tungkiang, a Chinese town situated at the junction of the rivers Sungari and Amur. Three Chinese and three Russian gunboats were sunk, casualties being appreciable. After stripping the town of all supplies the Russians withdrew.

On 17th November more serious hostilities were resumed. Russian aeroplanes bombed Mulantsiang on the Eastern frontier and did some execution on the Chinese aerodrome at that place. On the Western frontier a train was fired upon near Manchuli and pillaged by the Russians, who then invaded Chinese territory, occupying Manchuli, Chagan and Dalai Nor. The Chinese resisted strongly, one brigade losing 4,000 prisoners. The Russians took 40 guns, a quantity of war stores and an armoured train. On 25th November, the Chinese evacuated Hailar, and fell back as far as Pokotu, which lies some 350 miles West of Harbin. Pokotu was then bombed by Russian aeroplanes.

The Mukden Government proved unequal to the task of meeting the invasion and immediately appealed to the Nanking authorities. Chiang-Kai-shek at once appealed to the various governments that had signed the Kellogg Pact, in order to enlist their support against Russia, as well as to the various Powers forming part of the League of Nations. In the meanwhile he made overtures to Moscow. The U.S.A. lost no time in approaching the Soviet Government, but met with an unfavourable reception, being informed *inter alia* that the Government of the U.S.A. addressed its declaration "at a moment when the Soviet and Mukden Governments have already agreed on several conditions, and are proceeding with direct negotiations which make possible a prompt settlement of the conflict between the Soviet and China. In view of this fact the above declaration cannot but be considered as unjustifiable pressure on the negotiations, and cannot therefore be taken as a friendly act."

Meanwhile, Chang Hsueh-liang, the Manchurian War-Lord, had also been conducting independent negotiations with Moscow. He was in-

formed that the Soviet terms for a resumption of negotiations were as follows :—

- (1) Restoration of the *status quo* on the Chinese Eastern Railway ;
- (2) Re-instatement of a Russian Manager and Assistant Manager in place of those expelled by the Chinese ;
- (3) Release of all Russian prisoners.

After struggling to avoid acceptance of these terms, Chang Hsueh-liang gave way.

On 22nd December, a protocol was signed at Khabarovsk, by which the *status quo* was restored on the Railway. Troops were thereupon withdrawn ; prisoners were released ; and ordinary commercial relations along the Russo-Manchurian frontiers were resumed. International traffic was announced as beginning on the Chinese Eastern Railway on the 20th January. But diplomatic relations were not to be resumed until 25th January, after a conference to be held in Moscow.

It will, however, need some time before the Chinese Eastern Railway can be running normally. During the recent operations, which, though supported by all modern adjuncts of war, resembled brigandage on the grand scale, the railway was virtually destroyed for many miles ; the track was literally torn up ; all electrical communications were broken ; while stations and railway buildings were burnt. These will all take time to repair. In the meantime Manchuria has lost heavily in a commercial sense.

In a recent leader, *The Daily Telegraph* summed up the position as follows : " The Chinese Government has paid a bitter price for its unscrupulous attempt to get rid of foreign influence in flagrant disregard of international agreement. The Soviet Government has maintained its position by force ; and it will, of course, continue to make that use of the Railway of which the Chinese Government has long complained. Ever since the defeat, two years ago, of Moscow's hopes of bringing Nationalist China into the Communist camp, the Russian control of the Chinese Eastern Railway has been employed as an agency for hostile propaganda, and Harbin has been a hive of espionage and intrigue. The quarrel might have been ended long before it was, and on the same terms. . . A Soviet force, so large as to confound the anticipations of military experts, was sent to Manchuria without a declaration of war. . . . If the Chinese defiance of right was barefaced, the answering aggression was a deliberate and totally gratuitous act of violence and a cynical repudiation of the Soviet Government's own pledge."

CORRESPONDENCE

[Correspondence is invited on subjects which have been dealt with in the JOURNAL, or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the JOURNAL.—EDITOR.]

THE COMMAND OF A PETROL FORCE

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In an interesting article in the last issue of the JOURNAL¹ Flight-Lieutenant V. R. Gibbs put forward a plea for "the re-grouping of the forces of the Crown, with a view to closer co-operation, tactical employment, and economy in administration." His paper specially referred to the benefits that would be derived by the transfer of armoured cars to the Air Force. In it he traced the early history of the two weapons, pointing out how they were both at one time working under the Navy in conjunction with the Army, a division of armoured cars having been formed for the sole purpose of aeroplane support; and he showed that they were complementary to one another in many of their functions.

The present writer warmly welcomes this recognition on the part of an officer of the Air Force of a need for a more intimate connection between the R.A.F. and mechanized ground forces. He, himself, in a recent book,² went rather further, venturing to suggest that armoured and mechanized formations should actually contain air units as part of their establishment, and that the Army and the Air Force should be re-organized so that the new "petrol force" officers of the two services should be on the same Colonels' list, just as officers of cavalry, artillery and infantry are on the same Colonels' list in the existing Army. If this suggestion were put into effect, then an air officer or army officer might, according to selection, command a "petrol force." No questions need arise of the Air Force being absorbed by the Army or vice versa. The proposal advanced was that a portion of the Army and a portion of the Air Force should be broken off from their parent stems and joined together, details being arranged in council by the senior officers of the Services concerned.

As the R.A.F. was at great pains to achieve independence and, by gaining its object, made very remarkable strides in efficiency, it is hardly likely to accept drastic change and dismemberment thus early in its career without very good cause. The writer does not propose to re-state here the reasons put forward in the book in favour of his proposal, but he would like to press the point that the change advocated would favour the Air Force, both personally and administratively, far more than the Army.

In the first place, Air officers have fine fighting commands up to the rank of Squadron Leader; but above that grade every step in the aerial hierarchy leads to more administration and less leadership. The amalgamation as suggested would

¹ "Armoured Cars and the Royal Air Force": R.U.S.I. JOURNAL, November, 1929.

² "Further Aspects of Mechanization": Wm. Clowes & Son.

alter this state of affairs over the block of the Air Force affected, and it would give Air Force officers concerned the right to command mixed air and ground forces of the most modern and vital type. In the second place, any break with tradition has a much less harmful effect on the Air Force than on the older Services. And finally, whereas old Army units would have to be completely metamorphosed before joining the "petrol force," units from the R.A.F. would join it in their existing shapes.

The real point at issue is not, of course, whether the proposal suits the Army or the Air Force, but whether or not its acceptance would be of value in solving our defence problems. As, however, strong opposition is bound to be raised against a change of such magnitude, it may be well to indicate the benefits to be derived from it by the Service from which objections may, perhaps, be most expected.

Yours, etc.,

H. ROWAN-ROBINSON,

Brigadier-General, late R.A.

BAGHDAD.

26th December, 1929.

GENERAL SERVICE NOTES

COMMONWEALTH OF AUSTRALIA

ABOLITION OF UNIVERSAL TRAINING.—By the Defence Acts of 1903 and 1904, all male inhabitants of Australia between the ages of 18 and 60 years were made liable to serve in Australia with the Defence Forces *in time of war*. More recent acts made both training and service compulsory *in time of peace*. By an Act of 1909 the principle of universal liability to be trained was made law for the first time in any English-speaking community. This system came into force in 1911, and training was prescribed as follows :—

- (a) from 12 to 14 years, in the Junior Cadets ;
- (b) from 14 to 18 years, in the Senior Cadets ;
- (c) from 18 to 26 years, in the Citizen Forces.

Exemptions existed in certain individual cases, also in sparsely populated areas.

Recruits were detailed for the Navy as well as the Army, but those for the former Service were restricted to coastal residents, preference being given to yachtsmen, etc., and to those whose normal occupation was connected with the sea. Later recruits were permitted to volunteer for service in the Royal Australian Air Force.

From time to time since the late war, financial stringency has resulted in modifications to the courses of training, and on 1st November, 1929, the Minister for Defence announced that the Government had decided to suspend all universal training.

A volunteer Naval Force and a Militia Army is being established to replace the system of compulsory training. The rates of pay for these volunteers—men undergoing training are to receive payment for the actual period they undergo such training—will be the same as under the compulsory system. Although it is not anticipated that the same total numbers will receive training under the voluntary system, the number of volunteers is expected to be sufficient for requirements and adequate to maintain the existing Army Divisional organization.

The previous organization was administered chiefly by the graduates of the Australian Military College, Duntroon, and a small permanent force of other ranks, and it is understood that no material alteration will result by the new system. A smarter type of uniform is to be provided for the Militia.

As regards the Naval Service, the new system should not have any material effect on the permanent seagoing naval forces. General administration and instruction has been carried out mainly by officers and ratings of the R.A.N. Auxiliary Service (permanent naval forces), and the existing general organization will remain. An adequate reserve force should be available from volunteer sources.

The view has been put forward that, while the *principle* of universal training had, on many grounds, much to recommend it, and could be regarded as having been approved by a large number of people, there did exist a considerable body of opinion, both civil and professional, to the effect that the actual amount of training received did not justify the sums of money expended for the purpose.

FRANCE

THE DEFENCE OF THE COLONIES AND OVERSEAS TERRITORIES.—A presidential decree of 24th August, 1929, based on a report of the Ministers of War, Navy and Air, lays down the relative duties, as regards colonial defence, of the Governor-General or Governor of a colony, and of the military and naval commanders of forces permanently or temporarily attached to that colony. It would appear that this decree has been found necessary owing to the fact that the previous ordinances on the subject were somewhat hazy as to the distribution of responsibility, especially as to the responsibility of the Governor-General or Governor as regards the actual military measures to be taken in case of necessity.

Briefly, the decree is to the following effect :—

Article 1.—The Governor-General or Governor is responsible for the internal and external defence of his colony under the Ministry of the Colonies. He receives general *directives* from that Ministry as to defence, and for that purpose disposes of the land and sea forces affected to his possessions ; these forces are under the direct command of the officer commanding troops and of the senior naval officer concerned.

Article 2.—The internal relations of these three authorities are established by Articles 3 and 4 of the decree.

Article 3.—Under the high control of the Governor-General or Governor, operations carried out by the military forces are under the exclusive orders of the officer commanding troops, and those of the navy under those of the senior naval officer. In the case of combined operations, they would normally be under those of the officer commanding troops, who will take the advice of the senior naval officer on all matters connected with the navy. In exceptional cases when naval interests predominate, the Governor-General may decide to delegate the command to the senior naval officer.

Article 4.—All preparations for defence will be made by the officer commanding troops, assisted by the senior naval officer, and in the case of subordinate work, the military, naval and *points d'appui* authorities will prepare their own schemes. When drawn up, the general plan of defence will be submitted to the *Conseil de la Défense de la Colonie* and then to the Ministry of the Colonies for approval.

Article 5.—The Ministry of the Colonies will consult the Ministry of the Navy as to their views, and if approved, return the plans to the Governor-General or Governor.

Article 6.—The cost of defence will be split among the appropriate budgets.

Article 7.—Independent naval craft, or forces temporarily in or near any colony, must co-operate with the colonial authorities and the commander of the *points d'appui* if necessary, and preparations for so doing should be arranged in peace time.

Article 8.—The provisions of this decree nullify all previous enactments on the subject.

THE ROYAL TOURNAMENT

The Royal Tournament for 1930 will be held at Olympia, from 29th May to 14th June, 1930, inclusive.

NAVY NOTES

GREAT BRITAIN

ROYAL UNITED SERVICE INSTITUTION

In a Fleet Order (No. 2979 of 22nd November, 1929), the Admiralty call the attention of all officers to the facilities which the Institution offers for professional study and discussion.

The Order states that "Arrangements have been made for such papers (on professional subjects) as are accepted (for publication in the JOURNAL) to be forwarded to the Admiralty, in order that permission may be obtained before publication, as required by Article 17 of K.R. and A.I. If desired by an author, his name need not be disclosed."

"Their Lordships," it is announced, "desire it to be known that they wish to give every encouragement to officers to join the Institution, compete for the essay prizes, and take part in the debates after the lectures."

FLAG APPOINTMENTS.

COMMANDER-IN-CHIEF, THE NORE.—Admiral Sir Reginald Y. Tyrwhitt, G.C.B., D.S.O., D.C.L. (Oxon.), is to be Commander-in-Chief, The Nore, in succession to Admiral Sir Edwyn S. Alexander-Sinclair, K.C.B., M.V.O., to date 16th May.

RESERVE FLEET.—Vice-Admiral Frank Larken, C.B., C.M.G., is to be Vice-Admiral Commanding the Reserve Fleet, in succession to Vice-Admiral P. H. Hall-Thompson, C.B., C.M.G., to date 22nd April.

REAR-ADMIRAL, SECOND BATTLE SQUADRON.—Rear-Admiral Charles J. C. Little, C.B., is to be Rear-Admiral, Second Battle Squadron, in succession to Rear-Admiral the Hon. R. A. R. Plunkett-Erne-Erle-Drax, C.B., D.S.O., to date 6th May.

THIRD BATTLE SQUADRON.—Rear-Admiral George F. Hyde, C.V.O., C.B.E., Royal Australian Navy, is to be Rear-Admiral Commanding the Third Battle Squadron, in succession to Rear-Admiral H. K. Kitson, C.B., to date 6th March.

ADMIRAL-SUPERINTENDENT, DEVONPORT.—On 8th November, 1929, it was announced that Vice-Admiral Oliver Backhouse, C.B., would continue as Admiral-Superintendent of H.M. Dockyard, Devonport, on retirement from the active list. The Admiralty also decided that an Admiral-Superintendent, promoted to Vice-Admiral and placed on the retired list for lack of qualifying service, during the tenure of his appointment, shall continue to carry out precisely the same duty as when on the active list, including the general administrative duties which devolve on him in the absence of the Commander-in-Chief, and, for the purposes of seniority with Vice-Admirals on the active list, shall rank and command as if he were still on the active list.

DIRECTOR OF NAVAL EQUIPMENT.—Rear-Admiral H. O. Reinold, C.V.O., is to be Director of Naval Equipment, in succession to Rear-Admiral J. C. W. Henley, C.B., to date 14th March.

FIRST CRUISER SQUADRON.—Rear-Admiral J. C. W. Henley, C.B., is to be Rear-Admiral Commanding the First Cruiser Squadron, in succession to Vice-Admiral H. W. Parker, C.B., C.M.G., to date 14th March. He will assume command about April 14th.

EAST INDIES COMMAND.—Rear-Admiral E. J. A. Fullerton, C.B., D.S.O., M.A., assumed command of the East Indies Station on 10th December, 1929, and hoisted his flag in H.M.S. "Effingham" at Colombo, in succession to Vice-Admiral B. S. Thesiger, C.B., C.M.G.

DIRECTOR OF NAVAL CONSTRUCTION.

Mr. A. W. Johns, C.B.E., Deputy-Director of Naval Construction, was appointed Director of Naval Construction, to succeed Sir William Berry, K.C.B., on the retirement of that officer on 23rd January, 1930.

Mr. E. L. Attwood, O.B.E., Assistant Director, was appointed to succeed Mr. Johns as Deputy Director of Naval Construction.

PERSONNEL.

ZONES OF PROMOTION.—A Fleet Order dated 3rd January states that the zones of promotion for the half-yearly selections in June, 1930, and until further orders, will be as follows:—Commander, four to eight years' seniority; Lieutenant-Commander, three to seven years' seniority, both on the date of selection. The zone for Commanders is as before. That for Lieutenant-Commanders was two-and-a-half to six-and-a-half years for the December selections, and formerly two to six years.

JACKSON-EVERETT PRIZE.—The Jackson-Everett Prize for 1929, the third award of its kind, instituted in 1927 for officers specialising in signals, has been awarded to Lieutenant E. W. J. Banks, R.N., of H.M. Signal School, Portsmouth.

GEDGE MEDAL AND PRIZE.—The first recipient of the Gedge Medal and Prize, founded in 1929 for the Paymaster Sub-Lieutenant passing the best examination for that rank, is Paymaster Sub-Lieutenant H. H. L. Shewell, R.N., serving in H.M.S. "Devonshire."

NEWMAN MEMORIAL PRIZE.—The Newman Memorial Prize for the year 1928-29, founded in 1886 for the officer taking first place in practical engineering on completing his original course, has been awarded to Lieutenant (E) D. W. H. Coughlin, R.N., of the Royal Naval College, Greenwich.

SECRETARIES' COURSE TITLE.—The Secretaries' Course will in future be designated the "Accountant Officers' Technical Course." This Course was started in February, 1920, and is held in the War College Building in Portsmouth Dockyard.

REDUCTION IN OFFICERS' PAY.—Another reduction of 1 per cent. in officers' pay and retired pay is to take effect on 1st July, 1930. The average of the cost of living index figures for the six months ending 31st December, 1929, will, it was estimated early in December, be slightly under 65; and under the formula prescribed in A.F.O. 3433/25, the rates of pay, retired pay, etc., ruling from 1st July, 1930, until 30th June, 1933, would have been approximately 92 per cent. of the standard rates, i.e., a reduction of 8 per cent. H.M. Government has decided, however, after full consideration of the circumstances, that the reduction from standard rates shall be limited to 7 per cent., subject to the rounding off of odd amounts as before, in place of the present 6 per cent. These rates will

take effect from 1st July, 1930, and will be in force for a period of twelve months from that date.

UNEMPLOYED AND HALF PAY.—An Order in Council dated 17th December, published in the *London Gazette* of 20th December, states that the Admiralty may from time to time desire to relegate an officer to the unemployed list for reasons not amounting to misconduct, but of such a nature as to render the grant of unemployed pay unjustifiable. The new Order empowers them, at their discretion, "to discharge an officer forthwith to half pay, without an intervening period on unemployed pay, otherwise than on account of misconduct or at the officer's own request."

OFFICERS' CENTRAL MESSING.—A new scheme of central messing for officers was ordered to be started in the "Rodney" on 1st January, and in the "Hawkins" and "Delhi" on recommissioning. It is being tried as an experiment, under the management of the Accountant Officer of the ship, with a view of providing better and cheaper messing.

MATERIAL.

CONSTRUCTION SUSPENDED.—In accordance with the decision of the Government on 24th July (see the August JOURNAL, page 612), to reduce the amount and slow down the rate of naval construction, there is now no cruiser building on the slips in any yard for the Royal Navy. None has been laid down since the "Exeter" was begun on 1st August, 1928. This ship was authorised in the 1927 programme, and was launched on 18th July, 1929.

The state of the 1928 programme is as follows :—

Cruisers "Surrey" and "Northumberland"—cancelled.

Flotilla-leader "Keith" and eight "Beagle" class destroyers,—building by contract, laid down during 1929.

Six submarines, "Rainbow" class,—one building at Chatham, three at Barrow; all laid down during 1929; two others cancelled.

Gunboat "Falcon,"—ordered from Yarrow & Co., December, 1929; to be laid down 1930.

Four sloops—laid down 1929. "Hastings" and "Penzance" at Devonport Dockyard; "Folkestone" and "Scarborough" by contract, Swan, Hunter and Wigham Richardson; now ready for launching.

Submarine depot-ship "Maidstone"—contract cancelled.

The only vessels of the 1929 programme yet begun are the sloops "Shoreham" at Chatham and "Fowey" at Devonport. The programme originally included three cruisers, one flotilla leader and eight destroyers, six submarines, one net-layer and target-towing vessel, and six sloops, including the two already begun. No steps have yet been taken to put this programme in hand. Moreover, in a written reply to a question on 29th January, the First Lord stated that the following vessels have been deleted from the programme: 2 cruisers (including the 8-in. gun ship), 4 destroyers, 1 net-layer and target-towing vessel, 2 sloops, and 3 submarines. A decision as to proceeding with the remaining three submarines will be taken after the Naval Conference.

EXERCISES AND CRUISES.

ATLANTIC FLEET CRUISE.—After being delayed 24 hours by the severe gale, in which the "St. Genny" was lost, the Atlantic Fleet left Portland on

14th January for Gibraltar on its Spring cruise. Between 8th and 15th March it will meet the Mediterranean Fleet for combined exercises in the vicinity of Pollensa Bay. Visits were to be paid by individual ships, squadrons or flotillas to Algiers, Oran, Malaga, Barcelona, Cartagena, and Huelva. The ships are due to return to their home ports on 29th and 30th March.

MEDITERRANEAN WINTER PROGRAMME.—The Mediterranean Fleet left Malta on 14th January for independent cruises until the 31st of that month. The flagship "Warspite" went to Alexandria, the "Revenge" to Naples, the "Resolution" and "Royal Oak" to the Gulf of Kotor, the "Courageous" and two destroyers to Suda Bay, the First Cruiser Squadron, "Eagle" and two destroyers to Athens, the Third Cruiser Squadron to Port Drepano, and other units to Tripoli, Astakos and Catania.

EAST INDIES STATION.—The flagship "Effingham" left Trincomalee on 28th January for home to refit and recommission. This ship and the "Enterprise" spent Christmas at Calcutta, and afterwards visited other Indian ports. The "Emerald" was at Karachi for Christmas, and afterwards returned to Colombo and Trincomalee.

CHINA SHIPS' CRUISES.—At the end of December, the "Kent" and "Cornwall" were at Hong Kong, the "Berwick" at Nanking, and the "Suffolk" at Shanghai. The "Cornwall" left on 17th January to relieve the "Suffolk," which returned to Hong Kong, and is to leave the Station on 15th June for recommissioning in England. The "Cornwall" was to remain at Shanghai until early in April, when she will be relieved by the "Cumberland," after refit and recommissioning at Chatham. A visit is due to be paid to Manila from 10th to 15th March by the "Kent" and "Suffolk."

AMERICA AND WEST INDIES.—After cruising over the wide limits of their Station during the Spring and Summer, cruisers of the Eighth Squadron reassembled at Bermuda in October. The flagship "Despatch" left on 11th January for a cruise through the Canal to Chilean ports. The "Durban" was to cruise in the West Indies, and on 12th April will hoist the flag of Vice-Admiral Fuller at Turk's Island. The "Delhi" was ordered to cruise on the South-West coast of America.

ORGANISATION AND DISTRIBUTION.

THIRD BATTLE SQUADRON.—On 1st January the Third Battle Squadron ceased to form part of the Atlantic Fleet, and became an independent command, with headquarters at Portland. The Squadron did not take part in the full Spring cruise of the Atlantic Fleet, but accompanied it only as far as Arosa Bay. It was due to return to Portland on 7th February.

EIGHTH CRUISER SQUADRON.—The "Capetown" and "Colombo" left Bermuda on 7th December on their withdrawal from this Squadron on the America and West Indies Station. The "Delhi" and "Dragon" have replaced them. The "Caradoc" is ordered to arrive home about 15th February. Her place will be taken about April by the "Dauntless," after completing repairs at Portsmouth.

SECOND CRUISER SQUADRON.—H.M.S. "Hawkins," which has undergone large repairs since returning from duty as flagship in China, was commissioned at Chatham on 31st December, with the full crew of the "Vindictive," to replace the latter as flagship of the Rear-Admiral Commanding Second Cruiser Squadron, Atlantic Fleet. The "Vindictive" recommissioned with a Chatham reserve

crew for service in the Nore Reserve, pending commissioning for a trooping trip to China, about 28th February.

THIRD DESTROYER FLOTILLA.—Arrangements announced in December for the relief of vessels of the Third Destroyer Flotilla, Mediterranean Fleet, by the new "A" class destroyers approaching completion, showed that the "Wolverine" and "Wanderer" were to return to England in December and January respectively, for relief by the "Acasta" and "Anthony." The "Keppel," "Wild Swan," "Veteran" and "Wishart" will proceed to the United Kingdom after the combined exercises for relief. Two other destroyers will accompany them, the "Vansittart" and "Woolston," from the Fourth Flotilla and Malta Reserve respectively. The "Vansittart" will be replaced in the Fourth Flotilla by the "Arbuscade." The "Woolston" will be replaced as spare 4.7-in. destroyer by the "Worcester," and the place of the latter in the Fourth Flotilla will be taken by the "Amazon."

SLOOPS ON FOREIGN STATIONS.—Consequent on the completion of the four sloops of the 1928 programme during the coming year, changes will be made among the sloops on foreign stations. The "Hastings" and "Penzance" are to replace the "Cyclamen" and "Lupin" in the Persian Gulf, and the latter ships will then go to relieve the "Wallflower," on the Africa Station, and the "Clematis," in the Red Sea Division respectively, these last-named ships being scrapped. The "Folkestone" and "Scarborough" are to relieve the "Crocus," Persian Gulf, and the "Wistaria," America and West Indies respectively, which vessels will then be scrapped.

AIRCRAFT CARRIERS.—Changes in the distribution of the aircraft carriers are recorded under "Fleet Air Arm."

LOSS OF THE FLEET TUG "ST. GENNY."

On Monday, 13th January, the Secretary of the Admiralty announced that H.M. tug "St. Genny," of the Fleet Target Service, attached to the Atlantic Fleet, sank in a severe gale at approximately 8.20 p.m. the previous evening, with the loss of 23 lives, about 32 miles north-west of Ushant. Three officers and twenty ratings lost their lives, and there were only five survivors. The officers lost were Lieutenant Charles Frederick Paul, in command; Commissioned Gunner Philip Stanley Lean; and Boatswain Charles Henry Beedell Burren.

The "St. Genny," in company with the "St. Cyrus" and the sloop "Snapdragon," had left Portland on 11th January, ahead of the Atlantic Fleet, for Gibraltar, in connection with the Spring cruise. They were hove to off Ushant in the hope that the storm would abate. When the lights of the "St. Genny" were missed, searchlights were thrown on the spot, and lifelines were thrown to men seen struggling in the water. Owing to the heavy seas it was impossible to launch a lifeboat. On receipt of news of the loss at Portland, the cruiser "Frobisher" proceeded to the spot, and returned to Plymouth at eight o'clock on the evening of 13th January, escorting the "Snapdragon" and "St. Cyrus."

ALBERT MEDAL AWARDS: H.M.S. "DEVONSHIRE."

The King has approved of the award of the Albert Medal to Lieutenant-Commander A. H. Maxwell-Hyslop, R.N., and No. Po./21038 Marine Albert Edward Streams for gallantry in saving life at sea.

The awards were made for their conduct on 26th July, when a heavy explosion blew off the roof of one of the turrets while H.M.S. "Devonshire" was carrying

out full calibre firing off Skiathos. Lieutenant-Commander Maxwell-Hyslop went to the turret when the explosion occurred, climbed inside, and descended the gun well through most dangerous conditions of fumes and smoke, necessitating the use of a life-line. Streams was the only man in the gun-house not killed or fatally injured. He instinctively climbed to the top of the side plating to escape, but climbed back into the turret amid smoke and fumes, helped to evacuate the one remaining man, and took charge in evacuating the crew of the fire control cabinet.

FLEET AIR ARM

AIRCRAFT-CARRIER CHANGES.—Orders were issued that the new aircraft-carrier "Glorious," Captain D. F. Moir, D.S.O., was to complete to full complement on 24th February at Devonport. She will join the Mediterranean Fleet at Malta about the end of June. The "Courageous" is to return to England for service with the Atlantic Fleet. The "Argus," now in that Fleet, is to reduce to reserve at Portsmouth about April. The "Hermes" is to refit at Hong Kong in February and March, and to return home by 1st October to recommission.

JUNIOR OFFICERS' AIR COURSE.—A Fleet Order dated 20th December states that every effort is to be made to ensure that all Midshipmen undergo the junior officers' air course while holding that rank. The names of those who are unable to do so are to be specially reported to the Admiralty on discharge to shore courses, in order that arrangements may be made for them to undergo the course after appointment as Sub-Lieutenant.

METEOROLOGICAL COURSES.—Arrangements have been made with the Air Ministry for the following meteorological courses for surveying officers:—(1) One week's course of instruction in recent developments of meteorology. The course begins on the Monday of any week, and will be available for not more than one officer at any one time. The officer will be nominated by the Hydrographer of the Navy. (2) Four weeks' course in meteorology for senior Surveying Officers (i.e., First-Class Assistants), who show special aptitude for the work. The courses will be held during the period November to March each year, and applications to undergo them should be made to the Admiralty, through the usual channels.

ROYAL NAVAL VOLUNTEER RESERVE.

PROMOTION.—Commander E. W. Swan, O.B.E., V.D., R.N.V.R., Commanding the Tyne Division, has been promoted to Captain, to date 31st December, 1929.

R.N.V.R. MINIATURE RIFLE COMPETITION.—The following is the result of the R.N.V.R. Inter-Divisional Miniature Rifle Competition for the Sir Charles Walker Challenge Cup, held during week ending 21st December, 1929:—

Place.	Division.	Score.
1st	Sussex	394
2nd	London	390
3rd	{ Ulster Bristol }	388
4th	Tyne	369
5th	East Scottish	339
6th	Clyde	310
7th	Mersey	285

SUSSEX DIVISION.—The Division provided a full Guard of Honour of three officers and 100 men, in honour of the visit of Their Royal Highnesses the Duke and Duchess of York to Eastbourne on the 29th October, 1929.

ROYAL MARINES

NEW COMMANDANT, PLYMOUTH DIVISION.—On promotion to Major-General, Brigadier G. L. Raikes, C.B., D.S.C., relinquished the post of Colonel-Commandant of the Plymouth Division. On 3rd December he was succeeded as Colonel-Commandant by Brigadier George Carpenter, O.B.E., D.S.C., formerly Colonel-Second-Commandant of the Chatham Division, where Colonel George Mathew relieved him.

PAY OF QUARTERMASTERS.—An Order in Council dated 17th December, published in the *London Gazette* three days later, sanctions the grant of full pay at the standard rate of £2 4s. a day to Lieutenant-Colonels (Quartermasters) of the Royal Marine Force on attaining three years' seniority in the rank, this rate to be subject to revision at the same dates and in the same manner as the rates of full pay authorised by Order in Council dated 22nd January, 1920. Formerly there had been only one standard rate of pay for these officers—£2 a day on promotion.

DOMINION NAVIES.

AUSTRALIAN ECONOMIES.—With a view to economy the surveying ship "Moresby" and the destroyer "Swordsman" were paid off into reserve at Sydney on 20th and 21st December respectively.

CANADIAN DESTROYERS.—The destroyers "Saguenay" and "Skeena," building at Thornycroft's yard, Woolston, will be of 1,328 tons displacement. Their horsepower will be 32,000, or 2,000 less than that of the "Beagle" class, but the designed speed is the same (35 knots), and the armament also (four 4.7-in. and seven smaller guns, with eight torpedo tubes).

ROYAL INDIAN MARINE

Extracts from a report on the reorganised Royal Indian Marine, dated 7th June, 1929, by Rear-Admiral H. T. Walwyn, C.B., D.S.O., the Flag Officer Commanding and Director, who assumed command on 16th November, 1928, were issued by the India Office on 30th December. These extracts referred to personnel, recruiting, training, signalling, gunnery, and other matters. The Director considers the present boys under training will be ideal material for the sea service. From the many applications received from good-class Indians to join the commissioned ranks, he thinks that there will be no lack of volunteers.

FOREIGN NAVIES

ARGENTINA

NEW CRUISER.—The cruiser "Vintecino de Mayo," which was launched at Leghorn on 11th August, 1929, and is a sister-ship to the "Almirante Brown," building at Sestri Ponente, will be of 6,495 tons. Her length will be 545½ ft., beam 58 ft., and draught 15½ ft. Geared turbines of 85,000 horse-power will give a designed speed of 32 knots, and there will be provision for 2,000 tons of oil. The armament will consist of six 7.5-in., twelve 4-in. A.A., and six pom-poms, and six above-water torpedo tubes. The complement will be 600 officers and men.

BRAZIL

NAVAL ESTIMATES.—The Naval Estimates for 1930 amount to approximately £4,176,380. This represents an increase of £277,363 on 1929, and does not include money for new construction, which is voted specially as occasion arises.

MOTOR-BOAT CONTRACT.—A flotilla of 33 motor-boats has been ordered from Messrs. J. W. Brooke & Co., Ltd., of Lowestoft. Thirty of the vessels are 30 ft. long, with a speed of 23 m.p.h., and three are 44 ft. long, with a speed of 20 m.p.h. It is stated that this flotilla is intended for the suppression of contraband traffic in Rio Bay.

CHILE

NEW SUBMARINES.—The new submarines, "Capitan O'Brien" and "Capitan Thompson," proceeded from Barrow to Portsmouth at the end of November. The rough weather experienced *en route* provided a test of their sea-keeping powers.

CHINA

JUNIOR OFFICERS AT GREENWICH.—Under the arrangement made between the British and Chinese Governments, a party of junior officers arrived in England in December. Eight Sub-Lieutenants joined the R.N. College on 2nd January, and twelve Cadets joined H.M.S. "Erebus" on 17th January for training with the special entry Cadets. After completing the "Erebus" course, these Cadets are to serve afloat for twelve months, and then go to Greenwich to study as Sub-Lieutenants.

FRANCE

NAVY ESTIMATES.—The French Navy Estimates for 1930 propose a total expenditure of 2,683 million francs, about £21,464,000. It is proposed to spend 198 million francs more on naval construction than in 1929.

NEW CONSTRUCTION.—The new construction Bill for 1930 comprises:—

- 1 10,000-ton cruiser.
- 6 Submarines.
- 1 Submarine minelayer.
- 6 Flotilla leaders.
- 1 Minelayer.
- 2 Sloops.
- 1 Net Layer.

It was suggested that a 10,000-ton battleship on the lines of the German "Ersatz Preussen" should be substituted for the cruiser, but this has been deferred until next year. Originally, provision was made for another submarine-cruiser of the "Surcouf" class, but this has been omitted. The submarines to be built will be of the much smaller "Requin" class of 1,130 tons. The flotilla leaders will be vessels of 2,600 tons.

THE FLEET IN BEING.—The total fighting tonnage of the Navy, in service or under construction, on 1st January, 1930, is 527,780, and includes nine battleships, one aircraft carrier, nine large cruisers of 10,000 or 8,000 tons, three smaller ex-German cruisers, 78 destroyers and torpedo-boats, 55 ocean-going submarines, and 33 coastal submarines. Three of the battleships, the three ex-German cruisers, about 30 torpedo craft, and a few submarines are obsolescent.

The effective personnel in 1930 is estimated at 58,500, which is 1,000 more than last year, and includes 500 attached to the Air Ministry.

NEW NORTHERN SQUADRON.—The new composition of the French Northern Squadron was completed at the end of November by the arrival of the last unit at Brest. The Squadron includes the old battleships "Voltaire" and "Diderot"; the new cruisers "Duquesne," "Suffren" and "Tourville"; the ex-German cruisers "Strasbourg" and "Mulhouse," and a flotilla of large destroyers.

THE CRUISER "DUPELIX."—The cruiser "Duplex," laid down at Brest in the autumn of 1929, is making rapid progress, as a result of the improved methods of building by adopting various forms of standardization and labour-saving processes. The "Duplex," the sixth of the 10,000-ton cruisers, will be somewhat slower, but better protected than the "Tourville."

LAUNCH OF THE "VAUBAN."—On 1st February, the flotilla leader "Vauban" was launched at Dunkirk by M. Deligne, Under-Secretary for the French Navy. The "Vauban" is one of the six vessels of the "Guépard" type, of 2,436 tons, 70,000 horse-power, 36 knots, and armed with five 5.5-in. and four smaller guns, and 6 torpedo tubes.

LAUNCH OF THE "SURCOUF."—The submarine "Surcouf" (Q. 5), the largest in the world, was launched at Cherbourg on 18th November. She is 390 ft. long, and 3,250 tons on the surface (4,300 tons submerged). On the surface, her speed is 18 knots, and submerged, 10 knots. Her armament will include four 5.5-in. guns, and fourteen 21-in. torpedo tubes.

NEW NAVAL COLLEGE.—M. Georges Leygues, Minister of Marine, on 14th November laid the foundation stone of the new Naval College on the Plateau des Quatres Pompes, near Brest, and overlooking the harbour. From 1830 to 1914, French Naval Cadets were educated on board the "Borda," and when that ship was worn out were transferred to barracks at Brest. Although a proposal for a shore college was made as far back as 1908, it was not until 1921 that land was acquired and prepared for building.

LOSS OF THE "EDGAR QUINET."—The armoured cruiser "Edgar Quinet," launched in 1907, grounded off Cap Blanc, twenty miles westward of Oran, Algeria, on 4th January. For five days the vessel rested on partly-submerged rocks, and although she was abandoned, there were hopes of salving her, but on the 9th she sank. The "Edgar Quinet" had replaced the "Jeanne d'Arc" as Cadets' training ship, and was carrying out exercises while on passage from Algiers to Casablanca when she grounded. No lives were lost.

GERMANY

NEW CRUISER COMMISSIONED.—The cruiser "Köln" was commissioned at Wilhelmshaven on 15th January, in the presence of representatives of the city, after which she is named. She was commanded by Captain von Schroeder, and manned by the crew of the "Amazone," which has been placed out of commission.

The "Köln" is the fourth of the replacement cruisers in the German programme, the "Emden" having been completed in 1925 and the "Karlsruhe" and "Königsberg" in 1929.

GREECE

NEW NAVAL PROGRAMME.—After a conference on 6th November, presided over by M. Venezelos, with the object of defining the naval programme, a communique

was issued to the effect that the Council had unanimously decided to abandon the idea of acquiring the "Salamis," and to devote the amount thereby saved to a gradual reinforcement of the light flotillas and the air force. Obsolete units not required for training purposes are to be scrapped. The *Times* correspondent at Athens reports that, as a result of this decision, the battleships "Kilkis" and "Lemnos" and the destroyers of the "Niki" and "Nafkratoussa" class will be sold.

ITALY

NAVAL ESTIMATES.—Provisional Naval Estimates for 1930-31 have been approved. It is reported that they represent an increase on the previous year of £2,621,000, of which £2,150,000 is earmarked for new construction.

NEW SUBMARINES.—Fifteen new submarines were completed for the Italian Navy during 1929. Recent launches include the "Ciro Menotti," of 815 tons and 17.5 knots surface speed, which was put afloat at Spezia on 30th December; and the "Squalo," of 810 tons and 16.5 knots surface speed, which was launched from the Monfalcone yard, Trieste, on 15th January. Both vessels are armed with one 3.9-in. gun and eight tubes.

SOVIET RUSSIA

FOREIGN CRUISE.—The battleship "Paris Commune" and the cruiser "Profintern" made a cruise in foreign waters during the past quarter. They put into Brest for repairs in December, and were announced to be making a cruise for training purposes in the Atlantic and Mediterranean. The battleship was originally the "Sebastopol," laid down in 1909 and completed in 1915; and the cruiser the "Svietlana," laid down in 1913 but not completed until 1925. The vessels, on their way to the Black Sea from Naples, passed through the Bosphorus on 17th January.

JAPAN

REDUCTION IN NAVAL ESTIMATES.—In the latter part of last year the Treasury informed the naval authorities that there must be a saving of 17 million yen on the total vote of 260 million yen. It is proposed to meet this requirement by a reduction of expenditure on auxiliary shipbuilding, maintenance, replenishments of munitions and shore establishments.

PROPOSED REDUCTION OF OFFICERS PAY.—A proposal by the Japanese Government to reduce the pay of naval officers was met with such a firm stand on the part of the Navy Department that the proposal was abandoned.

SPAIN

DELAYED PROGRAMME.—In a statement on the naval construction on 30th December, the Spanish Minister of Marine stated that the Government's recent decision to include expenditure under the extraordinary Budget in the ordinary Budget would not result in a reduction of the naval programme. It would, however, have the effect of causing construction to be spread out over a longer period. The cruisers "Canarias" and "Balcares," which were to be handed over in 1932 and 1933, would not be completed until 1935 and 1936 respectively. Of the twelve submarines which were to be laid down in 1930, only five would be built. Eight destroyers had been ordered, but the Minister had given instructions for these not to be handed over until 1938.

UNITED STATES

SECRETARY'S REPORT.—The Annual Report of the Secretary of the U.S. Navy, issued for publication on 9th December, made special reference to modernization and to air development. "With the completion of the *Pennsylvania*" and *'Arizona,'*" said Mr. Adams, "the modernization of ten of the thirteen pre-Jutland battleships in service will have been completed." All the eight cruisers authorized in December, 1924, will be completed by March, 1931. There was urgent need for additional aircraft carriers to provide for the Air Arm of the fleet in its proper relationship to the fleet as a whole. The Navy Department recommends that immediate steps be taken to provide the parity of aircraft-carrier tonnage provided for in the Washington Treaty. "This is the most urgent need of naval aviation at the present time."

COMPLETION OF THE "PENSACOLA."—It was announced that the new cruiser "*Pensacola*," the second of the eight 10,000-ton vessels building under the programme of 1924, would be commissioned on 8th February.

LAUNCH OF THE "AUGUSTA."—The cruiser "*Augusta*" sixth of the eight vessels of the class authorised by the Law of 18th December, 1924, was launched at Newport News, Virginia, on 1st February. Her particulars are: Standard displacement, 10,000 tons; length, 600 ft.; complement, 50 officers and 625 men; horse-power, 107,000; speed, 32.7 knots; armament, nine 8-in. guns, four 5-in. A.A. guns, 6 torpedo tubes.

AIRCRAFT CARRIER FIRE.—A fire, due to a turpentine pot catching alight in a launch alongside, burned floating residue and up the side of the aircraft carrier "*Saratoga*" at San Pedro, California, on 2nd January. Two men were killed, and four seriously injured. There were 20 aeroplanes and 1,500 men on board the "*Saratoga*" at the time.

NAVAL ESTIMATES.—The Estimates for 1931 amount to \$383,092,526. This is an increase of \$16,399,256 on 1930. Provision is made for continuing work on the two cruisers laid down and on the aircraft carriers and three cruisers, to be laid down late in the fiscal year 1930, also for the commencement of the second and third series of five cruisers each, late in the fiscal year 1931.

ARMY NOTES

ROYAL UNITED SERVICE INSTITUTION

A Circular Letter has been addressed to all Commands drawing the attention of officers to the advantages of joining the Institution.

HOME

REGULAR FORCES

APPOINTMENTS AND PROMOTIONS.—H.M. The King has been pleased to become Colonel-in-Chief of The Manchester Regiment. H.M. The King has been pleased to approve of Major-General Sir Robert A. K. Montgomery, K.C.M.G., C.B., D.S.O., retired pay, being appointed Colonel Commandant, Royal Artillery; of Major-General Sir Andrew M. Stuart, K.C.M.G., C.B., retired pay, being appointed Colonel Commandant, Royal Engineers; of Brigadier-General Sir Alfred Balfour, K.B.E., C.B., being appointed Colonel of The Highland Light Infantry (City of Glasgow Regiment).

The following appointments have been made:—Major-General W. M. St. G. Kirke, C.B., C.M.G., D.S.O., to be Commander of the 5th Division.

Major-General W. J. Maxwell-Scott, C.B., D.S.O., to command the 52nd Lowland Division, Territorial Army, in succession to Major-General H. F. Thuillier, C.B., C.M.G., with effect from 30th March, 1930;

Major-General Sir Ivo L. B. Vesey, K.B.E., C.B., C.M.G., D.S.O., to command the 48th South Midland Division, Territorial Army, in succession to Major-General T. T. Pitman, C.B., C.M.G., with effect from 1st April, 1930;

Major-General Sir Reginald S. May, K.B.E., C.B., C.M.G., D.S.O., to command the 49th West Riding Division, Territorial Army, in succession to Major-General N. J. G. Cameron, C.B., C.M.G., with effect from 9th June, 1930.

Major-General H. H. S. Knox, C.B., D.S.O., has been selected for the appointment of Commander of the 3rd Division next summer, in succession to Major-General Sir John T. Burnett-Stuart, K.B.E., C.B., C.M.G., D.S.O.;

Major-General Sir Hugh J. Elles, K.C.M.G., K.C.V.O., C.B., D.S.O., has been selected for the appointment of Director of Military Training, War Office, in succession to Major-General H. H. S. Knox, C.B., D.S.O., who will vacate the appointment shortly;

Brigadier J. E. S. Brind, C.B., C.M.G., D.S.O., A.D.C., has been selected for the appointment of Major-General, Royal Artillery, India, in succession to Major-General B. R. Kirwan, C.B., C.M.G., who vacates the appointment on 1st April, 1930.

TRANSFER OF THE CONTROL OF SIERRA LEONE.—Responsibility for the defence of Freetown, Sierra Leone, has been transferred from the War Office to the Colonial Office, with effect from 1st September, 1929.

DRESS. CHANGE OF FACINGS: THE GLOUCESTERSHIRE REGIMENT.—H.M. The King has been pleased to approve of the facings of The Gloucestershire Regiment being changed from "white" to "primrose yellow."

DISBANDMENTS.—H.M. The King has approved the disbandment of the under-mentioned units on the withdrawal of the British Army of the Rhine :—

Royal Engineers—

H.Q., Transportation and Rhine Railway Company.

Printing Section.

Electrical and Mechanical Section.

Postal Section.

Royal Army Service Corps—

" E " Supply Company.

Royal Army Ordnance Corps—

Numbers 8 and 13 Companies.

Royal Army Veterinary Corps—

Number 5 Section (Station Veterinary Hospital).

And also of No. 4 Horse Transport Company, Royal Army Service Corps.

OFFICERS' PAY.—The standard rates of pay, half-pay and retired pay for Army officers shall be subject to a reduction of 7 per cent. from 1st July next. The revised rates shall operate until 30th June, 1931, when the rates will be again considered. It is stated that this measure constitutes a temporary departure from the rule for determining the percentage reduction from the rates of officers' pay, half-pay and retired pay, which was laid down in 1925. The operation of this rule would have resulted in a reduction of 8 per cent. for three years from 1st July next, in lieu of the reduction of 6 per cent. which has been in operation since 1st July, 1927.

Provision is also made for the similar revision of the emoluments of officers of the Militia or Territorial Army, and retired officers appointed to the Staff of, or as Adjutants in, the Territorial Army.

ARMY RESERVE TRAINING.—It is notified that there will be no training during 1930 for Sections " B " and " D " of the Army Reserve.

THE KING'S MEDAL.—The medal with clasp " 1929 " for the champion shot of the Home Forces has been won by Lieutenant G. F. Johnson, 1st Battalion, Scots Guards.

EVACUATION OF THE RHINELAND

The programme of the evacuation, given on page 872 of the November issue of this Journal, was carried out without a hitch. The final ceremony of lowering the Union Jack at Wiesbaden was performed on 12th December before the Hotel Hohenzollern, where British G.H.Q. had been quartered since 1926. A guard of 100 men of 2nd Battalion, The Royal Fusiliers, commanded by Lieutenant-Colonel R. Howlett, D.S.O., M.C., was on duty. Lieutenant-General Sir W. Thwaites, K.C.B., K.C.M.G., was first received with a General Salute. He then took up a position, together with Mr. W. Seeds, British High Commissioner on the Inter-Allied Commission for the Rhineland. The Royal Salute was given, and the two flags, one on the roof of G.H.Q. and the other on the flagstaff in front of the building, were lowered. The second flag was handed to the G.O.C., who, in presenting it to the C.O. of the Fusiliers, reminded him that his Battalion was among the first units of the British Army to reach the Rhine on 13th December, 1918. It was now the last to leave, after eleven years' duty in Germany.

General Guillaumat, Commander-in-Chief of the French Army of the Rhine, was present, unofficially, with a number of French officers, and a French battalion of the 8me Régiment d'Infanterie was drawn up at the approach to the station to bid farewell to its British comrades. The Fusiliers' band returned the compliment by playing " La Marseillaise " as it crossed the square.

The civilian population manifested a most friendly disposition.

ARMY IN INDIA

The Secretary of State for India has appointed General Sir Alexander Cobbe V.C., G.C.B., K.C.S.I., D.S.O., to be Military Secretary, India Office, in succession to Field-Marshal Sir Claud Jacob, G.C.B., K.C.S.I., K.C.M.G., who vacates the appointment on 9th May. Sir Alexander Cobbe thus returns to a post which he previously held for five years, when he served under four successive Secretaries of State for India.

TERRITORIAL ARMY

RECRUITING FOR THE YEAR 1928-1929.—The official returns for the year ending 30th September last, show that during the year 28,187 men were approved for service in the Territorial Army, and that the total strength of the Territorial Army on 1st October, was 6,784 officers and 130,007 other ranks. The number of recruits shows a decrease of 846 compared with the previous year, but is 5,611 more than in the year 1926-27.

The strength of the fourteen Divisions and other troops is as follows:—

50th (The Northumbrian), 9,300; 51st (The Highland), 8,894; 46th (The North Midland), 8,831; 53rd (The Welsh), 8,790; 49th (The West Riding), 8,366; 52nd (The Lowland), 8,276; 42nd (The East Lancashire), 7,874; 48th (The South Midland), 7,837; 55th (The West Lancashire), 7,744; 43rd (The Wessex), 7,664; 54th (The East Anglian), 7,523; 44th (The Home Counties), 7,121; 47th (2nd London), 6,973; and 56th (1st London), 6,468; 2nd Cavalry Division, 2,568; Army Troops, 13,411; Coast Defence Troops, 5,847; and Anti-Aircraft Troops, 3,304.

SUMMER CAMP ATTENDANCE.—The *Daily Telegraph* Challenge Cup, awarded annually for the best attendance at Camp, has been won this year by The Nottinghamshire Yeomanry, with an attendance of 95.28 per cent. The runners-up were the Tynemouth Heavy Brigade, Royal Artillery, with an attendance of 94.34 per cent. Other units which reached a percentage of over 90 were the following:—

<i>Unit.</i>	<i>Percentage attendance.</i>
1st (Rifle) Battalion, The Monmouthshire Regiment ..	93.63
The Yorkshire Dragoons	93.6
The Northumberland Hussars	93.26
6th (Lanarkshire) Battalion, The Cameronians	93.08
8th Battalion, The Durham Light Infantry	91.74
10th Battalion, The Manchester Regiment	90.89
6th Battalion, The Durham Light Infantry	90.59
55th (Northumbrian) Medium Brigade, Royal Artillery ..	90.18

DOMINION FORCES

REGIMENTAL ALLIANCES.—The King has been pleased to approve of the following alliances:—

The 2nd Battalion, Australian Infantry, Australian Military Forces, to The Queen's Royal Regiment (West Surrey);

The Elgin Regiment, Non-Permanent Active Militia of Canada, to The Northumberland Fusiliers;

The Sydney University Regiment, Australian Military Forces, to The King's Royal Rifle Corps ;
 The Governor-General's Body Guard, Non-Permanent Active Militia of Canada, to The Queen's Bays (2nd Dragoon Guards) ;
 The 35th Battalion, Australian Infantry, Australian Military Forces, to The Northumberland Fusiliers ;
 The Bermuda Volunteer Rifle Corps to The Lincolnshire Regiment ;
 The 1st Hussars, Non-Permanent Active Militia of Canada, to the 11th Hussars (Prince Albert's Own) ;
 The Peel and Dufferin Regiment, Non-Permanent Active Militia of Canada, to The Lancashire Fusiliers ;
 The Perth Regiment, Non-Permanent Active Militia of Canada, to The Cameronians (Scottish Rifles).

THE KING'S MEDAL.—The medal with clasp "1929" for the champion shots of the undermentioned military forces has been won by the following :—

- (1) New Zealand Forces.—Staff Serjeant-Major J. H. Kearney, New Zealand Permanent Staff.
- (2) The clasp "1929" for the champion shot of the Military Forces of Australia has been won by Warrant Officer, Class I, J. D. Shearim, Australian Instructional Corps. The medal was won by this warrant officer in 1927.
- (3) The clasp "1929" for the champion shot of the Military Forces of Southern Rhodesia has been won by Company Quartermaster-Serjeant F. H. Morgan, Southern Rhodesia Territorial Force. This non-commissioned officer won the medal in 1927 and the clasp in 1928.

THE EARL GREY CHALLENGE TROPHY COMPETITION.—This Trophy, presented by Earl Grey when Governor-General of Canada, is awarded annually to the Province which can show on Parade at the Annual Inspection the greatest number of enrolled cadets between the ages of twelve and eighteen years, in proportion to the number of boys attending school during the previous school year.

For the year 1929 the Trophy has been awarded to the Province of Quebec.

NOTICES

The EDITOR has been requested to make known the following :—

- (1) An examination for one Gill Memorial Scholarship and one or two Gill Memorial Exhibitions will be held at Brighton College on 3rd and 4th June, 1930. Admission to compete in the examination is by nomination, and candidates must be—

- (i) Under 14½ years of age on 1st June, 1930 ; and
- (ii) The sons of officers who hold or have held His Majesty's Commission in the Regular Army or, failing such candidates, sons of officers who hold or have held His Majesty's Commission in the Reserve or Auxiliary Military Forces.

The Scholarship and Exhibitions are each tenable at Brighton College for three years, but this period may be extended to four years. The annual value of a Scholarship is £81, and of an Exhibition £60, reducing the amount payable by a parent or guardian to approximately £77 and £98 respectively, inclusive of all necessary extras.

- (2) The famous Cathedral of Ripon stands in need of immediate and extensive repairs. A minimum amount of £10,000 is required for the renovation of the

fabric and other essential purposes. Towards this sum the Dean and Chapter have raised £6,600.

The Cathedral authorities now desire to make a special appeal to all officers, N.C.O's, and men of the Army, past and present, who were quartered at Ripon during the war. Letters have been received from General Sir Bruce Hamilton, G.C.B., K.C.V.O., and Lieutenant-General Sir Henry Lawson, K.C.B., testifying to the good work which was done on behalf of the troops during those dark days by the Cathedral clergy and members of the congregation.

Every donation, whether small or large, will be thankfully received, and should be sent either to the Dean or to the account of Cathedral Appeal Fund, Midland Bank, Ripon.

FOREIGN

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BELGIUM

FRONTIER DEFENCE.—France's intention to devote from 2½ to 3 milliards of francs, spread over several years of extraordinary budgets, as a preliminary expenditure on her system of Eastern frontier defence which, so it is reported, will be completed in 1935, is discussed by the *Independence Belge* of 5th October, 1929. Comments of a disparaging tone are made on the efforts of Belgium to put her own Eastern frontier in a state of defence, without which the Northern frontier of France would still, as in 1914, be open to invasion.

The *Independence Belge* states that up to date only 33 million francs (of which 10 million were voted in 1928) have been placed at the disposal of the Engineers for the defence of that frontier. It would appear that the Fortification Commission and the General Staff are making but miserly provisions for dealing with a problem of capital importance for fear of being accused of wasting public money.

At the present moment, the General Staff is content with repairing the Liège Forts and constructing a new work at Lixhe (just north of Visé on the Meuse) at the spot where, in 1914, the lack of a suitable fort allowed the Germans to cross the Meuse out of range of the Belgian guns.

The six forts on the right bank will, therefore, be repaired and more or less transformed by means of modern armaments.

This work will be completed by creating concrete M.G. emplacements, command posts and subterranean telephone communications. At the same time, work is in preparation for water supply and fresh air inductions to the forts.

Nothing is yet decided regarding the Namur Fortress. The question of demolitions is also being studied. Masonry constructions, i.e., forts, tunnels, viaducts, etc., will be prepared for mines, and the problem of blocking roads of approach will be provided for throughout the frontier.

The whole will cost approximately 50 millions of francs—in reality very little.

UNIFORM OF THE MILITARY AIR SERVICE.—With regard to the proposal to reorganize the military aviation as a separate arm, it is reported that this will be laid before the Chamber of Deputies by M. de Broqueville shortly. The *projet de loi* in question will allow for a special uniform for the officers of the aviation modelled very much on that of the British Air Force. It is to be of blue cloth, *coupe anglaise*, brass buttons, cloth belt and buckle, soft blue shirt and collar.

CZECHOSLOVAKIA

NEW WAR MINISTER.—The Prime Minister, M. Udrzal, who has hitherto also acted as Minister of National Defence, has resigned from the latter post, which has been filled by Dr. Viskovsky, a former Minister of Justice.

According to a press interview, the new Minister stated that one of the country's most important economic problems was the reduction of military service, but, having regard to the need for increasing the efficiency of the Army, this would only be possible when there was available a sufficiently large number of non-commissioned officers, who had served for a considerable period. He added that, as far as Czechoslovakia was concerned, there was no question of the establishment of the Army on a militia basis. A militia had no economic or military value as compared with a standing army, and the former enthusiasm in the country for a militia system had practically disappeared.

FRANCE

CONSEIL SUPERIEUR DE LA GUERRE.—A Ministerial Decree of the 3rd October, 1929, amending earlier Decrees, fixes the composition of the *Conseil Supérieur de la Guerre* as follows :—

President.—The Minister of War.

Members.—The Marshals of France ; Generals maintained without limit of age in the first section of the General Staff of the Army, being over 65 and under 70 years of age ; a maximum of twelve *Généraux de Division*, the latter to include the Chief of the General Staff for the time being, and the Inspector-General of Colonial Troops, if the latter is at the same time President of the Consultative Commission of Colonial Defence.

The new decree stipulates that the *Conseil Supérieur de la Guerre* may carry out its deliberations, either in a committee or commission appointed from its constituted members, or as a whole, the object of this being to enable the committee to prepare and advise on the subject matter for discussion prior to its submission to the council as a whole.

The following points arise in connection with these changes :—

Prior to this decree, important questions of principle were often brought forward and settled by the Council without adequate preparation, with the result that, in practice, far-reaching decisions were arrived at with insufficient study. In view of the fact that military problems, especially those of a technical nature, have now become so complicated, the change effected must be advantageous.

A certain amount of criticism in the press and military circles is prevalent on the subject of the general attributes and responsibilities of the *Conseil Supérieur de la Guerre*, which the new decree has done nothing to elucidate. For instance, the exact relations between the General Staff and the *Conseil Supérieur de la Guerre*, which is, strictly speaking, a purely consultative body, remain obscure, especially as regards whose views are predominant in the case of an important or contentious discussion arising. Again, the Vice-President of the *Conseil Supérieur de la Guerre* (at the moment Marshal Pétain) is recognized as the probable commander of the Army in time of war, and, for many reasons, therefore, his attitude or his influence in the Council can hardly fail to be of a predominant nature. Apparently it is considered that these points should be clearly laid down, and that the organization of the Higher Command of the Army as a whole needs careful scrutiny.

UNIFORM.—The following modifications have been ordered :—

1. In future, all officers in full dress, or in campaigning kit, will wear the low collar on the same lines as the British, the only difference being that the point of the collar will bear the crest or device of the arm to which the individual belongs. In campaigning kit, a collar of the same colour as the shirt will be worn, and the white collar in full dress.

2. In campaigning kit, the *adjudants* will wear collars exactly on the same lines as officers, but in full dress they will wear a double collar closing with hooks and eyes in front and a false white collar fastened inside. The ordinary shoulder straps of the *adjudant* will be replaced by gold or silver braid epaulettes interwoven with red.

3. The tunic with the new form of collar will be obligatory for all officers from 1933, and for officers joining after the date of the decree, immediately.

As regards *adjudants*, they will be permitted, in campaigning kit, to wear old coats with the walking-out collar, or those specified for officers and *adjudants*, at will.

RE-ORGANIZATION OF THE ARMY.—In the September number of the *Revue des deux Mondes*, General Debeney, the Chief of the General Staff of the French Army, made a full appreciation of the military situation of France in an article, entitled "A national or a professional army," which is really a defence of the recent reforms, for which he himself is largely responsible.

In Part I, entitled "Professional Army," he begins by painting a picture of the German Army of to-day, and the facility with which that army can be expanded rapidly to one of considerable dimensions, more or less secretly. He envisages how on the declaration of war, or even before, it would be in a position to attack a potential adversary, overwhelm his covering force, and penetrate deep into his territory. As a result of this, subsequent battles would be fought on the territory of the invaded nation.

He then asks his readers to consider facts rather than theories, and proceeds to quote figures, based on General Staff calculations, to show the minimum requirements of France to enable her to defend her frontier effectively. The total is set down as 300,000 men, or 400,000 if it is intended to act offensively by taking the initiative.

Next he examines the resources at France's disposal to enable her to create the "Special Army" which so many would prefer, always ready "for attack as for parade." He gives reasons why it is impracticable to recruit sufficient numbers of volunteers for a professional army of 300,000. The bulk of these would have to remain in the ranks, and the money required to make such a proposition attractive, in the matter of pay and pensions, would present an almost impossible financial burden on the nation, which, in addition, has to maintain a large force of regular non-commissioned officers for its commitments overseas. He then discusses the alternative of dividing the annual contingent into two portions, the one which will do a long term of service and be stationed on the frontier, and the other which will only serve for a very brief period and remain in the interior. His objections to this are, that it is contrary to the long-established practice in France of equality of service; that it will be very difficult to arrive at a just method of selection; that it cuts the French Army in two in such a way that the less important, or short service portion, will inevitably be made to suffer financially and in the provision of material at the expense of the other; that the bulk of the army will be the short service contingent, which will require a considerable time to train before it is fit to take the field; and finally, that it

exposes the nation to the risk of having its forces annihilated successively in parts. His epithets for the "two armies" are *Armée qualitative* and *Armée quantitative*, and he goes to some length to prove his objections to this form of sub-division.

Finally, he turns to the Overseas Army, and makes a short comparison of the commitments of Great Britain and other Powers with those of France. He is pained by the attitude assumed at Geneva by other countries in bracketing France's Home Army and overseas forces under one head, and hopes in the future to make the position more clear by issuing the Budget for each in different parts. (N.B.—This has been done in the case of the *Projet* for 1930.)

Part II deals with the National Army, and is, in fact, an explanation of the new system and organization. He begins by saying that the active Army is primarily an instructional organization, and a cadre for the covering force; it can no longer be an exclusive instrument for absorbing the reserves. He then considers the increase in material, and, referring to a statement sometimes made that armies have become solely mechanized forces, says "an obvious exaggeration, if we consider that inert material can only be of value in the hands of the men who produce it, serve it, protect it and supply it." He considers that with the introduction of new weapons, and the greatly increased equipment of all arms, the material to be placed in the field at the beginning of a war will be at least four times what it was in 1914. He points out that industrial mobilization works too slowly of itself to provide what is necessary, and that, in consequence, very large stocks of all sorts have to be kept in peace. This requires an army of men, equivalent to several divisions, for care and maintenance purposes only. Under the three years' service rule, this might be undertaken by military personnel, but under the one year system it is manifestly impossible. The one year rule is the direct consequence of victory; only the sanctions and safeguards of the Peace Treaty has made this possible. The eighteen months' term introduced in 1923 had been a failure; this, coupled with the campaigns in Morocco and Syria, had demonstrated the need for permanent personnel. To counterbalance the extra expenditure involved, it had been found necessary to decrease the number of formations, and reduce the term of conscription to one year. This solution, however, was only feasible if the soldier was free during his year of service to devote his entire time to military duties, and by the creation of sufficiently large professional cadres to train him. The fixing of the age of enlistment at twenty-one years is described as a measure of social security and military foresight. With regard to the Colonial Army, this has now been doubled and an expeditionary force formed, which further relieves the Home Army, of one year recruits, from having to take part in small wars overseas.

The present system of distribution of the Army, and the method of mobilization in portions of twenty divisions, is then explained, also how in 1931 it will be possible to call out several classes of reserves simultaneously and group units in their war-time formations. As regards the *Couverture*, this force of twenty active divisions will take from four to five days to move to the frontier, owing to the limited capacity of the railways, and these four or five days may be of vital importance. During this period, there are only the fortresses, now being reconstituted, to hold the enemy at bay. A solution has, therefore, been adopted by Parliament, whereby the three youngest classes of the reserve, known as *Disponibles*, can be called up as a whole, or in part, and wherever they are required on the mere threat of war, provided that Parliament and the League of Nations is informed of this preventive measure. These reservists will await the arrival (presumably on the frontier) of the bulk of the twenty divisions of the covering

force. France must reserve to herself the right of being able to do this in order to be able to have a covering force ready at a given moment.

Part III, headed "The Great Solution," is an appreciation of the Army of to-day, as reorganized, dealing more particularly with the type of war it is fitted to wage. A vivid picture is given of the modern battle. The "punch" of Von Seeckt, or air bombardment in mass, it is said, may inflict severe trials upon the victim, but they leave the greater part of his resources intact and, if his morale survives, he can organize his resistance. He refuses to credit the axiom that no protective screen can stop, or disintegrate, this form of attack. He hopes the eastern defences of France will not be valueless. He quotes the "Schlieffen plan" as being based upon surprise and aiming at a short war. In dealing with the aims of the creators of modern armies to make for short wars, and the improved material with which they supply these armies, the author goes to some length to show how progress in armament is indissolubly bound up with industry in time of peace. The conclusion is that no one can guarantee a short war or fix its duration.

General Debeney maintains that the division as constituted to-day is self-contained, and the best school for combined training—the one incontestable lesson being that success can only be the outcome of the co-operation of all arms. He then goes on to defend the principle of training the recruit in the regiment in which he may have to fight, rather than in instructional centres or depots, and stresses the value of *esprit de corps*.

The article concludes with a defence of the theory of "a nation in arms." The real surprises in war are those of armament. To-day the security of the country cannot be handed over to Utopian theories, however attractive. He believes that the day will come when the League of Nations will have evolved a practical means of imposing arbitration, but that day is not yet.

The epilogue deals with the question of disarmament, and an attempt is made to show the futility of comparisons between the forces of different nations. It is only possible to do this if countries are forced to adopt a militia or, alternatively, a professional army. In France he thinks the militia system, owing to its want of security, would soon lead to the professional army, which he thinks impossible for the French. He asserts that his country put up the one constructive method of reducing armament—the famous protocol. He foreshadows its resurrection.

GERMANY

GENERAL VON SEECKT'S BOOK, "DIE ZUKUNFT DES REICHES."—Generaloberst von Seeckt has published a new work, "Die Zukunft des Reiches," which deals with Germany's future.

In his introduction, he professes to pose neither as a prophet nor as a dictator of arbitrary programmes; in the subsequent eight chapters he analyses in a lucid and masterly style, not only the various problems which confront the "Reich," but also the social, economic and political factors which underlie its future development. Seeckt's handling of constitutional as well as of economic principles is sure and sound. Without allowing himself to be entangled in a web of detail, he skilfully sketches the main outlines of each problem, and boldly indicates the policy he advocates to reach the objective. Above all, he insists that the future of the "Reich" must develop in accordance with its own national instincts, not from ideas borrowed abroad; Italian Fascism, English parliamentary methods, Russian Bolshevism and French centralization are all equally unsuited to the German temperament.

In his first chapter the author discusses the basic foundations of the State: agriculture, industry and commerce. German agriculture is definitely backward, and must, in the national interests, receive more encouragement from the State. American methods might with advantage be copied, but the only real hope of improvement lies in the direction of rationalization, standardization and co-operative effort. Everything must be subservient to the main object, namely to render Germany self-supporting as regards essential foodstuffs.

The main danger confronting German industry to-day is its tendency to come under foreign control. The modern idea of horizontal trusts of international dimensions is fatal to national interests, and must be combated if necessary by State intervention. But this intervention must not be overdone, or it will develop into State Socialism and hamper private enterprise. The great economic problem for Germany to solve is how to build up again her national wealth in the face of the burden on industry involved by the "tributary payments resulting from the lost war." Here, again, there looms the danger of over-indebtedness to foreign capital. The individual must be encouraged to save without the fear of seeing his savings exhausted by excessive taxation. "A wealthy State with penniless citizens is not the object but the antithesis of economic development."

The chapter on social problems is full of vigorous logic. Although, in prosperous times, a State can afford to be generous in social works, it may be forced to curtail these when times are hard. The object to be attained is the greatest possible benefit for the whole nation, not the equal prosperity of each individual, which is utopian and impracticable. The citizen must not expect to derive his prosperity from the State. It is the State which lives on the prosperity of its citizens. Certain social services are incumbent on the State, but too much reliance on State aid tends to undermine the will to work, which is the basis of all social development. If social benefits can be based on the principle of mutual assistance in emergency, they at once assume the character of social comradeship instead of State charity. The author issues a warning against State interference in industrial conflicts, but if the State does intervene it must be guided by economic, not political, considerations. The advocates of State Socialism must realize that their ideals are merely tending towards Bolshevism, "which in its Russian form is far more than a social movement, it is a religion; it has no principles to be understood, it has only dogmas which must be believed."

From social principles the author proceeds to the relations of the State to such ethical tasks as religion, education, science and art, charitable institutions and the judicature. Each theme is reviewed sanely and broad-mindedly. "Tolerance is a characteristic of those governments which feel themselves strong; intolerance is a sign either of internal weakness or of a bad conscience." While claiming a high place for the Prussian system of State education, he admits that it may not be equally well adapted to Masuria and to Württemberg, and that a village school in Pomerania requires different men and other methods than the Berlin Board School.

Turning to the form of government most suited to the Germany of the future, Seeckt finds himself on more difficult ground, and his conclusions will certainly arouse dissent, not least in his own country. Though professedly an advocate of the administrative unification of Germany, it must be of a kind to his own liking, with the predominance of Prussia definitely acknowledged—"the one German State which has been able to win new ground for Teutonism," though he candidly admits that Prussia *kann nicht immer sympathisch sein*. He roundly abuses the Weimar Constitution as being a make-shift effort at unity, based mainly on hatred

of Prussia. He is, however, right in criticising the financial methods of the present Federal system, since the individual States tend to spend recklessly the "pocket-money" allotted to them by the "Reich," as they have no responsibility for collecting it. The present German parliamentary system and proportional representation are also condemned.

The chapter devoted to police and armed forces will probably be scanned with the greatest interest, but actually it is the least illuminating in the whole book. The necessity for decentralizing the police force and centralizing the military administration of the "Reich" is insisted on, and the employment of military force in aid of the civil power is dealt with. There is nothing new, however, about army organization, a disappointing omission, for nobody could be more interesting on this subject than he who created the "Reichsheer." He avoids all discussion as to whether a professional army or a nation in arms is the better military organism, and contents himself with several pages of platitudes regarding the role of a professional army in conserving the military traditions of the country.

The book concludes with two rather nebulous chapters on the duties of the citizen and of the head of the State. The latter must be a kind of benevolent despot, rising superior to party politics and personal feelings. It is possible that modesty forbade the author to enlarge too definitely on this subject, as he is frequently mentioned as a future candidate for the presidency of the "Reich."

HUNGARY

ARMY ESTIMATES, 1929-30.—The Army Estimates for the financial year commencing 1st July, 1929, provide for the expenditure of approximately £5,426,000. Compared with the estimates for the previous year, there is an increase of about £644,000, or 13½ per cent. Rather over two-thirds of this increase comes under the heading of "Troops," whilst increased allotments for "Pensions" and "Training and Military Education" account for the bulk of the remaining one-third.

The Minister of War, Count Csaky, in the course of the debate on the estimates, stated that the increase was mainly due to the fact that the strength of the Army was being progressively raised by 2,000 men a year until 1932, when it would attain the quota of 35,000 allowed by the Peace Treaty. He explained that under the enforced voluntary system the cost of the Army was necessarily high, and it had been found essential to raise the pay of the men in order to obtain sufficient recruits. Count Csaky admitted that the question of increased pay for officers and non-commissioned officers was a pressing one, but, although it had been possible to do a little as a result of reductions of personnel in military establishments, he could not yet hold out hopes of any great improvement in the conditions of officers in view of the financial situation of the country. There were, however, several possibilities of freeing officers from debt, such as by means of long-term loans.

The Minister stated that expenditure on material showed a rise of 47 per cent., but this was partly due to the additions to the strength of the Army.

Turning to the subject of pensions, Count Csaky explained that the increase was accounted for by the improved scale recently voted and by additions to the numbers pensioned. He regretted that no reduction under this heading would be possible for the next two or three years.

The following, amongst other items, were also dealt with in the speech :— The proposed introduction of a new military code, which would correspond with the civil law wherever possible ; the steps taken to improve the general education of non-commissioned officers, who were now obliged to attend upper forms in the elementary schools, the fees being paid by the War Ministry ; and the intention to arrange for the repatriation of some 10,000 former Hungarian prisoners of war still in Siberia.

In the course of his concluding address, Count Csaky said :—" At present we are unable to make any progress in the question of the revision of the military clauses of the Treaty of Trianon. We should cherish no illusions if we wish to achieve positive results. It is now primarily a question when, from an international point of view, we shall be strong enough to protect our rights with the necessary expenditure of force." In the meantime they would, for their part, adhere honourably to the Peace Treaty, and they must guard against a repetition of the fatal mistake committed by the Central Powers during the war, of acting without consideration for world public opinion.

AIR NOTES

ROYAL AIR FORCE

ROYAL UNITED SERVICE INSTITUTION

In an Air Ministry Weekly Order (No. 781/1929 of the 19th December), The Air Council calls the attention of all officers to the facilities which the Institution offers for professional study and discussion.

The Order states that "Arrangements have been made for such papers (on professional subjects) as are accepted (for publication in the Journal) to be forwarded to the Air Ministry, in order that permission may be obtained before publication, as required by para. 1072, clauses 7 & 8 of K.R. and A.C.I. If desired by an author, his name need not be disclosed."

"The Air Council," it is announced, "desire it to be known that they wish to give every encouragement to officers and cadets to join the Institution, compete for the essay prizes, and take part in the debates after lectures."

APPOINTMENTS.

Marshal of the Royal Air Force Sir H. M. Trenchard, Bart., G.C.B., D.S.O., D.C.L., LL.D., to Half-pay List; Air Chief Marshal Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., to Air Ministry, on appointment as Chief of the Air Staff. Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., to Air Ministry, on appointment as Air Member for Personnel; all to date 1st January, 1930.

Air Vice-Marshals F. R. Scarlett, C.B., D.S.O., to Headquarters, R.A.F., Middle East, as Air Officer Commanding, 25th October, 1929; A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., to Headquarters, Inland Area, as Air Officer Commanding, 2nd November, 1929; H. C. T. Dowding, C.B., C.M.G., to Headquarters, Fighting Area, as Air Officer Commanding, 6th January, 1930; E. R. Ludlow-Hewitt, C.B., C.M.G., D.S.O., M.C., to R.A.F. Staff College; A. M. Longmore, C.B., D.S.O., to Headquarters, R.A.F., Cranwell; C. L. N. Newall, C.B., C.M.G., C.B.E., A.M., to Air Ministry (D.C.A.S.); all on promotion to Air Vice-Marshal, and to date 1st January, 1930.

Air Commodores A. M. Longmore, C.B., D.S.O. (since promoted), to Headquarters, R.A.F., Cranwell, as Air Officer Commanding, 16th December, 1929; Hon. J. D. Boyle, C.B.E., D.S.O., to Headquarters, Air Defence of Great Britain, for duty as Chief Staff Officer, 10th January, 1930; P. B. Joubert de la Ferte, C.M.G., D.S.O., to No. 23 Group Headquarters, as Air Officer Commanding, 15th December, 1929; W. R. Freeman, D.S.O., M.C., to Headquarters, Inland Area, for duty as Chief Staff Officer, 15th October, 1929; W. G. S. Mitchell, C.B.E., D.S.O., M.C., A.F.C., to Air Ministry, as Director of Training, 4th October, 1929; P. H. L. Playfair, M.C., to Headquarters, R.A.F., Transjordan and Palestine; A. W. Bigsworth, C.M.G., D.S.O., A.F.C., to No. 10 Group, Headquarters; W. F. MacN. Foster, C.B.E., D.S.O., D.F.C., to No. 1 Air Defence Group, Headquarters; all on promotion to Air Commodore, and to date 1st January, 1930.

PERSONNEL.

FLYING TRAINING.—During the period 1st October, 1929, to 31st December 1929, the following completed Courses at Flying Training Units :—

	Officers.	Airmen.
Central Flying School "Instructors' Course"	23	5
Cadet College	19	—
No. 1. F.T.S.	—	1
No. 2. F.T.S.	18	14
No. 3. F.T.S.	13	—
No. 4. F.T.S.	1	2
No. 5. F.T.S.	11	—
Naval Officers	1	—
Auxiliary Air Force	19	—
Conversion Courses	25	—
Refresher Courses	5	—

GROUND TRAINING.—Eight Officers are attending a long Torpedo Course which is being conducted at the R.N. College, Greenwich and in H.M.S. "Vernon." This course began on 26th November, 1929, and will finish on 2nd May, 1930.

NAVAL CO-OPERATION.

(See FLEET AIR ARM, *page* 195).

ARMY CO-OPERATION (HOME).

During the period under review the personnel of Army co-operation squadrons has been mainly employed on individual training or on annual leave on completion of the training season, 1929.

The Senior Army Officers' Course was held at Old Sarum from 25th November to 4th December, 1929. Six Major-Generals, five Brigadiers, four Colonels and two Majors attended in addition to eight Royal Air Force officers. The C.I.G.S. and C.A.S. visited Old Sarum whilst the course was in progress.

This Course, which was first instituted in 1928, proved to be so successful that it is now taking place annually. The object of the course is to accustom senior army officers to the employment of air forces under their command, and to the issue of orders to air forces in order to bring about the course of action desired.

ORGANIZATION.

The following units of the Regular Air Force will form on the dates indicated :—

Hornchurch.—Station Headquarters, No. 54 (Fighter) Squadron (Headquarters and one Flight), 15th January, 1930.

Mount Batten.—No. 209 (Flying Boat) Squadron, 15th January, 1930.

Three Units of the Auxiliary Air Force are to form on 17th March, 1930 :—

Hendon.—No. 604 (County of Middlesex) (Bomber) Squadron.

Usworth.—No. 607 (County of Durham) (Bomber) Squadron.

Thornaby.—No. 608 (North Riding) (Bomber) Squadron.

OVERSEAS COMMANDS

GOLD COAST

A flight of three R.A.F. aircraft of No. 45 Squadron carried out a flight to Nigeria and the Gold Coast between the 19th October and the 29th November, 1929. The aircraft kept to schedule time throughout the flight. This is the first occasion on which Service aircraft have visited the Gold Coast.

IRAQ

SITUATION IN THE SOUTHERN DESERT.—As a result of an unsuccessful rebellion in Nejd against their ruler, Ibn Saud, certain Akhwan Sheikhs, with their fighting men, women and children, took refuge in Koweit territory. As it was contrary to the policy of His Majesty's Government to allow the rebels to seek sanctuary in either Iraq or Koweit, steps were at once taken to deal with them. The position was one of extreme delicacy. If the rebels were ejected by force, they would be driven into the hands of Ibn Saud, who was waiting on the other side of the frontier with a large force and His Majesty's Government would have had to face the charge of being responsible for the massacre of women and children, which might have resulted from this action. On the other hand, the presence of these large numbers of women and children rendered the situation more complicated than it would have been otherwise. Every effort was made to persuade the rebels either to return to Nejd or surrender but without effect.

Owing to the boggy nature of the ground due to heavy rains, the effective use of armoured cars was rendered extremely difficult. It was therefore decided to take air action of a limited nature. Accordingly on 6th and 7th January a few light bombs were dropped in order to turn some isolated bodies of camels, who were moving North and had reached a point within thirty miles of Koweit town. The result of this action was at once manifest. Naif ibn Hithlain, the Sheikh of the Ajman, with the whole of his tribe surrendered unconditionally to the Royal Air Force commander. The other rebel leadej, Feisal an Dawish, Sheikh of the Mutair tribe, still declined to surrender and continued his march Southwards towards the Nejd frontier. Here Ibn Saud with a large force was moving to head him off, and Dawish, unable to face the meeting with Ibn Saud, which was inevitable should he continue his march into Nejd territory, and not wishing to subject the Mutair to further air action, surrendered unconditionally with his tribe to the Royal Air Force commander on 9th January.

A complicated situation was thus brought to a satisfactory conclusion without the need for drastic air action and without the infliction of casualties to either side. The rebel leaders are confined on board H.M.S. "Lupin," while their tribesmen are in Koweit until arrangements for their disposal have been made.

No. 203 (FLYING BOAT) SQUADRON. A further cruise to Karachi by two flying boats of this unit was carried out during October. The aircraft left Basrah on 16th October and visited Bahrein, Muscat, Ras al Khaimah and Gwadar. One boat remained at Gwadar owing to the cracking of a propellor blade; the other boat arrived at Karachi on 18th October. A spare propellor was sent to Gwadar by fast mail steamer on 19th October. The necessary repairs were effected and the boats proceeded to Muscat on the return journey on 25th October.

While at Muscat opportunity was taken to visit Khor Jaramah at the easternmost point of Arabia. The boats landed in the lagoon which was found to provide a suitable anchorage for flying boats and seaplanes in all weathers. Beit al Farage, the Headquarters of the Muscat Levies, was also visited and a site for an aerodrome chosen. At this stage of the journey one boat was recalled to Basra on account of possible trouble in Koweit. The cruise was continued by the remaining boat to Umm al Quwain, where an excellent flying boat anchorage was found in the lagoon. The boat proceeded to Ras al Khaimah and after refuelling there continued its journey to Yas Island and Bahrein. At the latter place two further sets of moorings were laid. The boat arrived back at Basra on 31st October.

DESERT POSTS.—In accordance with the policy of encouraging the growth of normal civil administration of the Southern Desert, the Desert Posts at Busaiyah,

Sulman and Shabichah, over which so much trouble has occurred in the past, were recently handed over by the Iraq Army to the Iraq Police. The remaining post at Nukhaib has been evacuated and will probably not be re-established.

PALESTINE AND TRANSJORDAN

Headquarters, Transjordan and Palestine, moved to Jerusalem on 29th September, 1929, and No. 30 (Bomber) Squadron moved from Hinaidi to Mosul on 23rd October, 1929. Following the outbreak of disturbances, the situation during the period under review continued to improve with the result that further reductions in the strength of the forces were made.

The 12th Lancers Armoured Car Squadron of eleven armoured cars returned to Egypt on 7th October and was replaced by a section of Royal Air Force Armoured Cars from Egypt, formed out of the reserve there. The 2nd Battalion Green Howards and one flight of No. 45 Squadron were withdrawn during October, and No. 3 Armoured Car Section left Palestine for Iraq on 28th November.

No. 6 (Army Co-operation) Squadron, Royal Air Force, has now relieved the two flights of No. 45 Squadron and one flight of No. 208 Squadron, while the 1st Battalion Northamptonshire Regiment from Malta has relieved the three companies of South Wales Borderers and one company King's Regiment.

Air Vice-Marshal H. C. T. Dowding, C.B., C.M.G., returned to England on 27th December and Group Captain P. H. L. Playfair, M.C., assumed command of all forces in Palestine and Transjordan as from that date.

A flight of No. 14 (B) Squadron at Amman has been temporarily withdrawn in order to carry out the annual Cairo-Cape flight which commenced on 11th January.

Apart from a small disturbance occasioned by a gang of bandits in the Safed area which was promptly dealt with by two troops of Transjordan Frontier Force co-operating with British troops, no disturbance of any note has taken place and the situation remains quiet.

SUDAN

During December trouble was experienced in the district of Kordofan. A small section of Nuba tribesmen, led by Mek Kabongo, had definitely defied the authority of the Government and offered armed resistance to a police patrol, compelling it to withdraw.

A small force of Camel Corps accompanied by police and the District Commissioner were despatched to the scene of unrest, and after a surprise attack the ringleader was arrested. On the following day, however, the Nubas retaliated, attacking the police and troops who were engaged in rounding up the enemy cattle. One soldier was killed and the British officer in command and a N.C.O. were severely wounded, the Nubas, casualties being four killed. The enemy had established themselves in a strong position on a hill abounding in caves and it became clear that a stronger force would be necessary to induce them to surrender. Reinforcements numbering about 300 Camel Corps were accordingly sent up, but during the week following the Nubas remained on the offensive, and in view of the certainty of casualties on our side if the rebels were attacked by infantry, it was decided to effect their surrender by the employment of air action. Action by five aircraft of No. 47 (B) Squadron was therefore taken on the 24th and 27th December, and as a result the tribesmen surrendered and their position was occupied by the infantry under cover of the aircraft. The situation is now normal.

FAR EAST

The Far East Command, comprising all Royal Air Force units stationed at Singapore and Hong Kong, was formed on 1st January, 1930, at Singapore.

NO. 205 (FLYING BOAT) SQUADRON.—With the object of collecting detailed information regarding seaplane and landplane emergency sites along the East Burma coast, two flying boats of this squadron undertook a reconnaissance of this area. Both boats left Singapore on 26th November and, in addition to the places already visited on the Singapore-Calcutta cruises, inspected sites at Basseim, Cox's Bazaar and Kyankpyu. The boats arrived back at Singapore on 31st December.

AVIATION IN FOREIGN COUNTRIES**FRANCE**

THE AIR MINISTRY.—Most of the Departments of the French Air Ministry are now installed in the new building situated at the corner of the Rue Saint Didier and the Rue des Sablons. Only the Department of Commercial Aviation and the offices of the Inspector-General of Military Aviation remain in the old building in the Avenue Rapp.

The internal organization of the Ministry has developed considerably. On the 29th September, 1929, a "modus vivendi" was published regulating the relations between the Air Ministry and the War Office. The new Air Force uniform is rapidly being brought into use.

THE 1930 AIR BUDGET.—By the end of 1929, the Budget had not been passed by the Chamber of Deputies. In his report on the Budget on behalf of the Chamber Finance Commission, M. Pierre Renaudel points out that the evacuation of the Rhineland will throw the cost of the units situated there on to the Home Air Budget. It seems unlikely that the Air Budget will finally be passed before the end of January.

NOTABLE FLIGHTS.—In October, Captain Goulette flew from Paris to Madagascar in ten and a half days, using a Farman 190 aeroplane with a Salmson 230 h.p. engine. In the same month Bailly and Regiensi also flew from Paris to Madagascar and back, taking eight and a half days for the journey out and the same time for the journey back.

In November, Costes and Bellonte established a world distance record on a Breguet-Bidon aeroplane with a 600 h.p. Hispano-Suiza engine.

GERMANY

The first flight of the new Junkers giant monoplane type J. 38, a trial trip of about thirty minutes, took place at Dessau on 6th November, 1929. This machine represents a new departure in aircraft design in that its four engines and part of the passenger accommodation are contained within the wings. There is accommodation for thirty passengers and a crew of six. It is equipped with four engines—two of 800 h.p. each and two of 400 h.p. each, a total of 2,400 h.p.

GREECE

The formation of a separate Air Ministry has been approved. M. Venizelos will be the first Air Minister, and he will have as his Under-Secretary, M. Zannas. There is no intention, however, at the moment of amalgamating the Naval and Military Air Services, although the creation of the Air Ministry will presumably lead to this in the future.

ITALY

GENERAL.—Italy made a further attempt to beat the world's record for distance within a closed circuit on the 12th December. The aircraft used was a Savoia Marchetti monoplane with a Fiat engine and the pilots were Commandants Umberto Maddaleno, and Lieutenant Fausto Cecconi, who had made the first attempt in the same aircraft in July last, when they were forced to land owing to a break in the water-pipe after being nine hours in the air. They were more successful in the second attempt and completed forty-four hours before they were forced to land. The cause of their descent on this occasion is unknown at present.

The Italian Air Force suffered a great loss on the 18th January when Warrant Officer Dal Molin, the Italian airman who was second in the Schneider Trophy Race last year, was killed in an accident at Lake Garda, whilst testing a Savoia Marchetti seaplane. This aircraft was one of the seaplanes brought over by Italy to compete for the Schneider Trophy, but which they were unable to get ready in time for it to participate in the race.

NEW CONSTRUCTION.—The Caproni Company have recently completed the Caproni 90, a giant biplane with six 1,000 h.p. Asso engines, which is reported to have satisfactorily passed Air Ministry tests. It is stated that this aircraft can carry a bomb load of about 8 tons or 100 passengers.

The Breda Company have completed the C.C. 3,000 all-metal monoplane, three 500 h.p. Asso engines, which is a high altitude bomber designed for a speed of 130 m.p.h., and which is at present undergoing tests.

The Fiat Company has also constructed a high altitude all-metal (duralumin) bomber of similar type to the Breda.

LATVIA

Squadron Leader D. Colyer, D.F.C., proceeded to Latvia, in January, 1930, for a two years' attachment as Air Adviser. It will be remembered that Flight Lieutenant A. C. Collier holds a similar appointment in Estonia.

SOVIET RUSSIA

Inadequate land communication in Russia, and the great distances to be covered, give more scope to civil aviation than is the case in other European countries. The importance of civil aviation is fully realized by the Soviet Government and, so far as limited financial resources have allowed, Russia has made considerable headway and has brought the operation of the more important routes to a high standard of efficiency.

The following are the main "trunk lines" now being regularly flown:—

- (a) Moscow to Berlin, and Leningrad to Berlin. (This service is run jointly by Russia and Germany.)
- (b) Moscow to Baku (via Tiflis), with an extension to Pahlevi (Persia).
- (c) Moscow to Irkutsk (in Siberia).

An ambitious "Five Year Plan," initiated in 1929, forecasts considerable expansion of civil air routes. In addition to a number of local air routes, chiefly

in Turkestan and Siberia, the following more important routes are included in this expansion programme :—

Second year (1930)—

- (a) Moscow-Samara-Orenburg-Tashkent.
- (b) Archangel-Ust-Sisolsk-Kharkov-Kiev, and Kharkov-Odessa with a possible extension to Constantinople.

Third year (1931)—

- (a) Extension to Moscow-Irkutsk line to China.
- (b) Extension of Moscow-Baku-Pahlevi line to Tehran.

Fourth year (1932)—

- (a) Nijni Novgorod via Samara to Astrakhan.
- (b) Extension of Moscow-Irkutsk line to Japan.

Fifth year (1933)—

Rostov-Kiev-Berlin.

It is improbable that all the extensions and new lines referred to above will be regularly operated within the periods laid down. This list is, however, of interest in that it shows the direction in which Soviet air authorities are thinking. Organized air routes from Russia Proper to Central Asia and to the Far East would, of course, have considerable military value. Reinforcing air units would be able to travel by air and thus save considerable time as compared with long rail journeys involving the dismantling, packing and re-assembling of aircraft.

UNITED STATES

AIR ESTIMATES, 1930-31.—The preliminary estimate figures have been published recently. The amount allotted to National Defence, exclusive of non-military items, re-appropriations, or supplementary appropriations, totals £148,394,010, which shows an approximate increase of £5,500,000. Of this, the total allotted for the Air Services from "Direct" and "Indirect" sources amounts to over £25,250,000, showing an increase of about £1,250,000.

Orders for new aircraft will cost over £6,500,000, which figure shows a decrease of £350,000 compared with the cost of new aircraft for the present fiscal year.

Civil Aviation is allotted a sum in the neighbourhood of £6,900,000 or slightly more than £1,500,000 in excess of the figure for 1929-30.

As at present estimated, the total amount covering all Government air activities is approximately £32,182,000, showing an increase of £2,820,000.

It should be noted that the Estimates have yet to be passed by the House of Representatives and the Senate.

Apart from the cost of aviation to the Government, it is worth noting that the cost of civil airport construction throughout the United States during the period 1st January, 1928, to the close of the present year, 31st December, 1930, has been assessed at between £154,000,000 and £164,000,000. Activities in this direction are being financed by municipal authorities and by private enterprise.

AIRSHIP NOTES

GREAT BRITAIN

"R.101."—On completion of air-borne machinery trials in her shed at the Royal Airship Works, Cardington, "R.101" was handled out of the shed early on the 12th October and moored at the mooring-tower; she carried out her first trial flight on the 14th October, passing over London, and her second flight on the 18th, remaining at the mooring-tower in the interval. She was replaced in the shed on the 21st October and was moored again to the tower on 1st November.

She remained in the air, either at the mooring-tower or in free flight from the morning of 1st November until the evening of 30th November, when she was re-housed. She had then been thirty-six days at the mooring-tower and had flown 73 hours 40 minutes in the course of seven test flights, the last of which was of thirty hours' duration over a distance of approximately 1,200 miles. During the second period at the mooring-tower, very heavy weather was experienced, particularly between the 9th and 12th November, when at the height of a gale the wind reached 83 m.p.h. and during a line squall, the airship swung through an angle of 135° under a wind force of 35 m.p.h.

"R.101" has thus fully demonstrated her strength, safety and stability, and has attained her calculated speed; but the fixed weight of the airship, including the experimental compression ignition engines, is greater than was anticipated. Certain minor modifications, which the trials have shown to be practicable and desirable, are now being carried out, and an additional section will be inserted in the middle of the airship before she flies to India and back.

"R.100."—The shed trials of "R.100" were completed in November, 1929, and the airship was handed over by the contractors to the Air Ministry for flight trials on the 21st of that month; suitable conditions for launching did not obtain until the morning of 16th December, when the airship made her first flight from Howden to the mooring-tower at Cardington.

A second test flight was made the following day in the vicinity of Cardington and on 18th December "R.100" was placed in No. 2 shed at the Royal Airship Works in order that certain adjustments to the outer cover wiring found to be necessary as a result of these flights might be carried out by the Airship Guarantee Company. She was taken out of the shed and flew again on 16th and 20th January for $13\frac{1}{2}$ and $7\frac{1}{2}$ hours respectively.

On the 27th January the airship started her endurance test. This was completed on the 29th January, after the airship had been in the air over fifty hours. In the course of her test she flew over Oxford, down the Bristol Channel, over Plymouth, round Guernsey and Sark, then up the English Channel, passing Beachy Head and Dover. Thence she made London, and having passed over the City turned South-west again and made Falmouth, Truro, Barnstaple, Bideford and Bristol, and from there back to Bedford.

GERMANY

THE "GRAF ZEPPELIN."—Since its first flight in September, 1928, the "Graf Zeppelin" has flown 73,000 miles. The ship has now been taken temporarily out of service for overhaul and adjustment.

The Aero Arctic Society has announced in the Press that it has abandoned its intention to carry out a flight to the North Pole by Zeppelin this year, in view of the difficulty experienced in making arrangements, including the insurance of the "Graf Zeppelin" and its crew. It is hoped to organize the expedition for 1931.

UNITED STATES

"ZRS 4."—The first ring of the large new rigid naval airship, "ZRS 4," some details of which were given by Air Commodore Fellowes, R.A.F., in his lecture on "The Present Position of Airships,"¹ was laid with much ceremony in Akron in November last.

It is expected that this airship will be completed about July, 1931, and the intention is to have one of these huge lighter-than-aircraft on each coast for co-operation with the fleet.

The crews for the two new airships are already under training in the "Los Angeles."

OBSERVATION CAR TRIALS.—The Air Corps has recently been carrying out experiments with a Sub-Cloud Observation Car, similar to that used by Zeppelins in the War.

The object is to employ an observer suspended so far below a dirigible that the latter can remain above the clouds and invisible, while carrying out bombing or reconnaissance operations, or to assist an airship to land in fog.

The trials are reported to have been successful.

¹ JOURNAL for August, 1929, p. 534.

REVIEWS OF BOOKS

A CORRECTION

British Strategy : A Study of the Application of the Principles of War.

By Major-General Sir Frederick Maurice, K.C.M.G., C.B., LL.D.

It has been brought to our notice that in the review of General Sir Frederick Maurice's book, "British Strategy," which appeared in the November JOURNAL, the implication was made that the author subscribed to the view that the operation of moving large German forces from the Eastern to the Western front needed "two or three months at the very least." Actually, these words were quoted by the author from Mr. Winston Churchill's book "The World Crisis, 1915," page 181; the context of the book under review in no way implies that its author endorses that estimate.

We much regret that General Maurice should have been so misrepresented, particularly in view of the fact, which our reviewer pointed out, that German official sources have since shown that Mr. Churchill's estimate was quite incorrect.

GENERAL

The Biography of the late Marshal Foch. By Major-General Sir George Aston. (Hutchinson). 24s. *od.*

Sir George Aston, with the consent and approval of Madame Foch and the executors of the late Marshal, has gathered together in one volume a mass of information with regard to him which will probably hold the field until Foch's—and Lord Haig's—papers and diaries are published. There are thirty-two excellent photographs showing the Marshal both alone and in a group of celebrities. The general result is a very good presentation of the character of Foch, his quaint sayings, and his personality. A third of the book is devoted to his career before the outbreak of the war, which found him sixty-two years of age. This period was of great importance; for in the long peace he formed himself for war by reading and thinking. It was not with a view to remembering some example or precept which would tell him what to do, "for in no situation in practical warfare is there an exact precedent which can be followed with advantage." His endeavour was to get at the essentials of a problem—"De quoi s'agit il?" was his phrase—and to solve it by common sense and character. Of relentless energy and determination he could impress his views on others by persuading them that he was right, rather than by giving orders—although these followed. A story is told when as a subaltern he was at the Cavalry School and seems to sum him up: One of his brother officers said of him: "Foch is very agreeable; he will fall in with any of your plans, always providing that he has not already made one of his own!"

In dealing with his career in the war, General Aston passes a little too lightly over his initial failures; he does not provide Foch's own explanation, published in the *Revue des Deux Mondes*, of the disaster to his XXth Corps at Morhange; he does mention that the troubles of his Ninth Army at the Marne arose from a second surprise—it is believed that Foch did order reconnaissances, but it seems uncertain whether they were carried out. Henceforward—except in 1917, when he was practically unemployed—his fate was closely bound up with that of the B.E.F. and we learnt to judge him for ourselves.

The volume is sadly lacking in maps. There are only four, and these all refer to 1914, and are taken from the British Official History without even the removal of their numbers, 1a, 5b, 6 and 12.

Imperial Economy. By Major R. J. Wilkinson, O.B.E. (Sifton, Praed & Co., London). 1930. 6s. od.

The title of this book is somewhat in the nature of a "portmanteau" expression, for it consists of a brief review of the material resources of the British Empire, viewed from the standpoint of their utilization, chiefly in time of war. Consequently the author stresses the strength and weakness of our Imperial communications, whilst viewing the latter as the particular care of all schemes of Imperial Defence. The number of topics dealt with is considerable, but the brevity of the book prohibits anything but a most summary treatment of the numerous problems to which allusion is made. Within that narrow compass the book should prove of use.

The Art of Generalship. Four Exponents and One Example. By Lieut.-Colonel C. O. Head, D.S.O. (Gale & Polden). 6s. od.

The author loses no chance to imply that the British Army is, and always has been, composed of a lot of obtuse and stolid Englishmen and Scots, who, to their good fortune, have been occasionally inspired and electrified by Anglo-Irishmen. The reader only marvels at his moderation in failing to suggest that Napoleon also had Irish blood in his veins. Perhaps this difficulty is the reason why, in Colonel Head's review, Napoleon comes off worse than Wellington, Wolseley and Henry Wilson. These comprise the four "exponents." The "example" is Salamanca, which seems to be included mainly, if not entirely, on account of a recent visit to the site. This latter is a nice bit of writing. In the author's opinion "it cannot be claimed that the English and Scotch produce great generals. By far our greatest exponents of the art of war have been Anglo-Irishmen." The reader may consider this a little unfair to Marlborough and Cromwell—unless they were to be regarded as Irish by temporary residence. One imagines that the Irish would not press the claim, at any rate in Cromwell's case! Yet many readers would regard these two as superior in generalship to any of Colonel Head's selections, even Henry Wilson. The author's unreserved eulogy of the last-named may, however, be made more palatable to some by his equally unreserved support of the "Western" school of strategy. Unreserved, it is also unexplained in his pages by any reasoned argument, historical or logical, and would seem merely to have been imbued through the medium of the conventional catch-phrases which so often crystallise a theory into an undisputable dogma.

Nevertheless, the book, although blemished by a certain crudity of thought and style, is well worth reading. Its characterisation of Napoleon, Wellington, and Wolseley is often marked by shrewd insight, and so long as the author keeps

to the plane of tactics he writes with understanding illumined by practical sense. As a discerning and well-balanced sketch his short study of Wolseley may be specially recommended to the present generation of soldiers, who know too little of Wolseley's influence on the British Army. His introduction also is stimulating; in it he examines some of the causes of the low standard of generalship in 1914-1918. He shrewdly criticises the system of corps areas, the lack of sympathetic contact between commanders and troops, the failure to keep a close watch on physical and mental fitness, the excess of "paper." But students of war history may be less inclined to agree with his "Wilsonian" way of holding up the French as a model for imitation. And he is definitely in error when he suggests that on the Somme our "weight of metal" was heavier than theirs.

Open House in Flanders, 1914-1918. Château de La Motte au Bois.

By Baroness Ernest de la Grange, C.B.E., Chevalier de la Légion d'Honneur.

Translated by Mélanie Lind, with an Introduction by Field-Marshal The Viscount Allenby, G.C.B., G.C.M.G. (John Murray). 15s. od.

The Baroness de la Grange remained in her Château de La Motte au Bois, which is situated in the Forêt de Nieppe, for close on four years during the Great War, that is until it came within range of the German shell fire, early in 1918. Throughout this period she entertained a series of British Headquarter Staffs, beginning with Lord Allenby, who arrived there as commanding the British Cavalry Corps in October, 1914. The delightful relations which subsisted throughout these years between the Baroness and the many distinguished generals who passed through her house, stand out on every page of this book. Besides the name of Allenby, one meets those of Byng, Pulteney, Birdwood, Godley, and many others. Then there are visits by H.M. The King. Altogether this side of the war is one that is not only attractive, but also serves as a pleasant foil to the many volumes now being poured out by the "realistic" school of writers. The book also contains many sidelights on the war, and on other matters which the author evidently picked up from her highly placed guests. In addition, she travelled occasionally in France during the war, and acquired much political small talk thereby.

The narrative is given in diary form and makes pleasant reading. The Baroness's admiration for the British commanders, particularly Lord Allenby, is only exceeded by her boundless affection for his son, Amaury, who served eventually in the French Flying Corps.

One tit-bit is worth recording. A lady of the Baroness's entourage seeing the "flash" of the Welch Fusiliers on a staff officer's uniform, enquired whether this might be a pen-wiper, suggesting at the same time that it was right that a brave soldier should put all thoughts of writing behind him in time of war.

Annals of a Chequered Life. By Arthur Montagu Brookfield. (John Murray). 15s. od.

Colonel Brookfield is a true type of progressive and busy country landowner—in his case, Sussex. He began by serving in the 13th Hussars, retired, and later took command of the 1st Cinque Ports Rifles. In 1900 he went to South Africa in command of the 14th Imperial Yeomanry, where he saw a good deal of varied service. His war experiences are quite good reading. One story told by him of a certain distinguished commander is worth repeating. "He once took a long and apparently earnest survey of the field with his glasses and then putting them away again, remarked: 'I can never see anything through these infernal things, but if a general isn't always sticking them up to his face, people think he doesn't know what he's about!'"

Great Britain and the Slave Trade. By William Law Mathieson. (Longmans, Green & Co.). 12s. 6d.

Mr. Mathieson has written an exhaustive study of the action taken by Great Britain in spite of many difficulties in finally suppressing the Slave Trade. The work will be invaluable to all those who wish to study the story of the struggle, lasting for nearly forty years, and of which it has been written that "there is no nobler or brighter page in the history of our country." He starts by reviewing the repression of the British Slave Trade in 1807 and the political troubles which followed with Spain, Portugal, Brazil, France and the United States over the right of search of the slave trading ships. The working of the British cruiser system on the West Coast of Africa is described, and there are several tales of the horrors that were common in that most horrible of trades. The Brazilian crisis of 1850-55 and the strong action taken by British cruisers are fully dealt with, as also are the conditions on the East African Coast, where France was at one time a "gigantic slave dealer." Then comes an account of the attempts to turn slave trading into the emigration of hired labour, and finally, of how, with the co-operation of the United States, the Slave Trade was finally suppressed after 1865. The book ends with the story of the work done by the British cruisers; a tale of arduous service in the worst of climates and of lives gallantly risked to save those of unfortunate slaves, abandoned in shipwreck by their captors. The book in parts may be heavy in hand for the ordinary reader, but to those who wish to study the chief work of the British Navy from 1830-60 (outside the Crimean War) it will be a necessity.

NAVAL

Jane's Fighting Ships, 1929. Edited by Oscar Parkes, O.B.E., M.B., Ch.B., and Francis E. McMurtrie, A.I.N.A. (Sampson Low, Marston & Co., Ltd., London). £2 2s.

At a time when the Navies of the World are passing under such close scrutiny, this comprehensive catalogue of warships, profusely illustrated as it is, becomes of even greater value than usual; while the latest edition impresses one more than ever with its mass of detail and its wealth of information.

As regards battleships, which are so much in the limelight at the moment, it is interesting to note that, as the Foreword remarks, the United States, in anticipation of the Conference resulting in an extension of life of this class, has expended much money and ingenuity in modernising their older ships. Another most interesting feature under this heading is the plan of the German miniature battleship, the "Ersatz Preussen," supplied by the Naval Staff, Berlin. This confirms and shows graphically the details already published in the JOURNAL.

The 10,000-ton cruiser types of each of the nations taking part in the Conference are described fully, and there are photographs of all except the American ships.

It is interesting to compare the new French ships of the "Vauban" class, classified as flotilla leaders, with the British "C" Class cruisers. The former, although a thousand tons less displacement, carry five 5.5-in. guns and six 21.7-in. triple torpedo tubes to the British ships' four 6-in. and four A.W. or two submerged 21-in. tubes, while the designed full speed is 36 knots in the one case and 29 knots in the other.

Altogether, this welcome annual is up to the exceptionally high standard which we have come to take for granted under such expert editorship.

MILITARY

The Great Earl of Peterborough. By Brigadier-General Colin Ballard, C.B., C.M.G. (Skeffington). 21s.

In attempting a full-size life of Charles Mordaunt, third Earl of Peterborough, General Ballard has set himself a difficult task which he has accomplished with some distinction. First comes the difficulty of giving unity to the book. The details of Peterborough's private life are somewhat vague, and his public life was so full of capricious actions and sudden changes—now emerging into the limelight of success, then suffering a temporary eclipse—that it becomes something of a problem to give a comprehensive account of him. General Ballard has attempted to solve this problem by giving a general historical sketch of Peterborough's period and to give it unity by fitting him into his appropriate niches. The method has on the whole succeeded, though the reader occasionally feels himself to be wandering a little too far from his hero. Such events of the Revolution and of the War of the Spanish Succession as are relevant are handled with care and restraint, though an exception must be made of the remarks on the naval campaign of Beachy Head which, as they stand, are entirely misleading and most unjust to Lord Torrington.

The second danger confronting Lord Peterborough's biographer is that of undue partisanship—particularly in connection with the campaign on the Iberian peninsula—and it is for avoiding this danger that General Ballard perhaps deserves greatest praise. Peterborough has been regarded as an unstable and selfish rogue by some, and as an unrecognized genius by others. General Ballard perceives that he was neither; that he was indeed unstable and selfish, but not a rogue; that he had moments of inspiration, but was far from a genius. The balance occasionally inclines towards lenience, but the General confesses that, like Swift, he "loves the hangdog," so he must be given some licence—especially as he writes in a lively style and with humour. It is to be wished, however, that he would adopt larger paragraphs.

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Many British soldiers are no strangers to the lessons of the American Civil War, although that gifted writer, Colonel Henderson, based his teaching on the happenings in only a corner of the whole theatre of war. We are indebted to Colonel Fuller for a wider view of the general strategy. He traces Grant gradually learning generalship out of his experiences as a subordinate commander in the western theatre, and he stresses the importance which Grant placed on a better co-ordination of the campaigns in the West with the operations in Virginia. He shows how finally, when called by President Lincoln to the chief command in 1864, Grant carried through his plan with the whole-hearted support of his political chief. It was a rare objective lesson of political and military chiefs understanding each other's problems. He reiterates that the terrible battles of the summer of 1864 were no mere bludgeon work on the part of Grant, but the consequence of his determination to "fix" Lee and the main army to the vicinity

of Richmond so as to allow Sherman to close up in Lee's rear for the final act. Grant contended, just as did Earl Haig, that an enemy's resistance—in which must be included the spirit of the enemy people—must be worn down by a continuous battering before the delivery of the decisive blow.

But after the war, instead of peace, came a long period of chaos and discord. Colonel Fuller in Part IV of his study examines how such an aftermath may, and should, be eliminated. Within the limits of a short review it is difficult to do justice to Colonel Fuller's reasoning, nor is he a writer whose reasoning is easy to grasp.

War is creative, its object is to bring about a state of peace better than before ; therefore no peace can start in an atmosphere of vindictiveness. A people under the guidance of their statesmen must realize the principles on which successful generalship is based, and apply those principles to work. The virtues of war are equally those to be sought in peace. Just as in an army in war the knowledge of the masters and the discipline of the men are welded into a co-operative effort by the staff, so must it be in industry : in both the staff must be in closest touch with the conditions of the workers and the direction of the management. The effect of modern industrial evolution is to make a people less and less self-supporting and more dependent on the produce of others, so that trade is more and more international. In order that trade may utilize to the full the world-wide communications which have broken down the old national geographical barriers, tariff barriers must also be broken down. In fact if preparation and scientific management are the two pillars of universal peace, the corner stone of the arch is Free Trade. Such is Colonel Fuller's interpretation of Grant's career.

Marlborough and his Campaigns, 1702-1709. By Lieutenant-Colonel Kearsey, D.S.O., O.B.E., *p.s.c.* (Gale & Polden, Ltd.). 3s.

Though written in the form of a handbook "for examination purposes," there is much that can be recommended in this volume by any who desire to acquire knowledge of the main facts of Marlborough's campaigns. These are annotated in accordance with the precepts of our Field Service Regulations. There are also some personal notes on Marlborough himself.

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Infanterie Angriff und Strategische Operation. Ausblicke und Vorschläge. Von Emil Sonderegger, Oberstdivisionär z.D. (Huber, Leipzig). Fr. 4.50, Mks. 3.60.

Onlookers are said to see most of the game ; the views therefore on infantry attack and strategic operations held by a distinguished Swiss officer, lately commanding a division, are of distinct interest.

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so long that rapid strategic blows, if the war procedure is followed, are out of the question. The infantry must therefore be so armed that it can more or less shift for itself, at any rate for a time, unless it is to be debarred from such operations. Lightning moves by mechanized columns and attacks by the air forces will he thinks, if duly prepared against, effect no more than cavalry raids in the past. Final success as heretofore will depend on the infantry. The greater part of the book therefore is devoted to the consideration of how the infantry should be armed and organized.

The rifleman is a thing of the past; the attacker like the defender must rely on machine weapons. In a lengthy argument he proposes a battalion formed of

3 automatic-rifle companies.

1 company of twelve heavy machine guns.

1 company of six mortars, to deal with machine-gun nests and strong points.

1 company of four 2 cm. automatic cannon, for use against tanks and air-craft.

The automatic-rifle company to consist of

3 platoons.

1 light machine-gun platoon with 9 machine guns.

The platoon to contain

9 automatic rifles.

3 small mortars to fire hand grenades.

The carriers of the mortars, guns, ammunition, etc., would be armed with bayonets, pistols, and small hand grenades. He considers smoke to be of importance; but gas no longer so. Four men per company should therefore carry smoke-producing apparatus. Ammunition supply presents difficulties; he is against motor transport and proposes the use of small one-horse carts.

The company thus organized would consist of 260 officers and men and 40 carts; a battalion of about 1,000 men and 195 carts.

The general idea of the handling of such a battalion is that it should be echeloned in depth, with the lightly armed portions in front. It will be able to make full use of ground, shell holes, etc., will require few trenches, and will not therefore present an artillery target.

AIR

All the World's Aircraft, 1929. Edited by C. G. Grey. (Sampson Low, London). £2 2s.

A reliable, up-to-date and comprehensive guide to aviation all over the world is contained in this volume, the nineteenth of the series. The fact that must first strike the student of the historical sections is the steady expansion of the aerial fighting forces throughout the countries of the world during 1928 and 1929. France, Italy, America and Russia are all engaged upon building up large Air Forces. France has formed an *Armée de l'Air* which includes both land and sea branches of her Air Force while leaving the various units under control of the Army and the Navy. Mr. C. G. Grey in the preface suggests that this is a step towards an independent Air Force like the British R.A.F. Italy already has her own independent Air Force and America is tending in the same direction. But the largest proportion of its revenue spent by any country on aeronautical development, Mr. Grey says, is "almost certainly spent by Russia." Precise information about Russian activities is difficult to obtain, but light is thrown upon the situation by an article by General Zarzar who was the Controller of Russian Civil Aviation.

The Society of Friends of the Air Fleet which was organized among Russian workmen was amalgamated with the Voluntary Chemistry, Chemistry and Aviation and Defence Increase Companies, and from this amalgamation there arose the Osoaviakhim Company. This resolves itself into a joint League of Chemical and Air Warfare, a combination which has been evolved in no other country, yet which might easily produce particularly formidable combined schemes of attack.

The aircraft section of the book shows that notable advances have been made in technique. At the two ends of the scale are the Dornier Do. X. and the high speed British seaplanes of Schneider Trophy type. There are also the less obtrusive though equally meritorious British light aeroplanes. The Saunders-Roe, "Cutty Sark," light, cabin flying boat with two Hermes engines, is a type of machine which might well prove popular, and start a fashion in small flying boats. It is the nearest thing to a genuine air yacht that has yet been produced. There is also the Handley Page biplane with automatic lift slots and wing flaps which probably has a wider speed range than any other machine in existence. Among the larger metal-hulled flying boats several particularly fine British designs are to be noted. In all, the aircraft section deals with 116 more machines than last year's volume and contains 61 more pages. The engine section is also more comprehensive this year. It deals with 163 engines as against 148 in 1928 and includes illustrations of swash-plate and compression-ignition engines. The airship section gives descriptions and illustrations of the American metal-clad airship as well as of "R.100" and "R.101." "All the World's Aircraft" has maintained its high reputation for accuracy while it has greatly enlarged its scope. Mr. Grey and his able assistants, Mr. Leonard Bridgman and Mr. Howard Flanders, are to be congratulated upon having produced the most fascinating as well as the most comprehensive of all aeronautical reference works.

REGIMENTAL HISTORIES

The Die-Hards in the Great War. A History of the Duke of Cambridge's Own (Middlesex Regiment), 1914-1919, compiled from the Records of the Line, Special Reserves, Service, and Territorial Battalions. By Everard Wyrall. Volume II. 1916-19. (Harrison & Sons).

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